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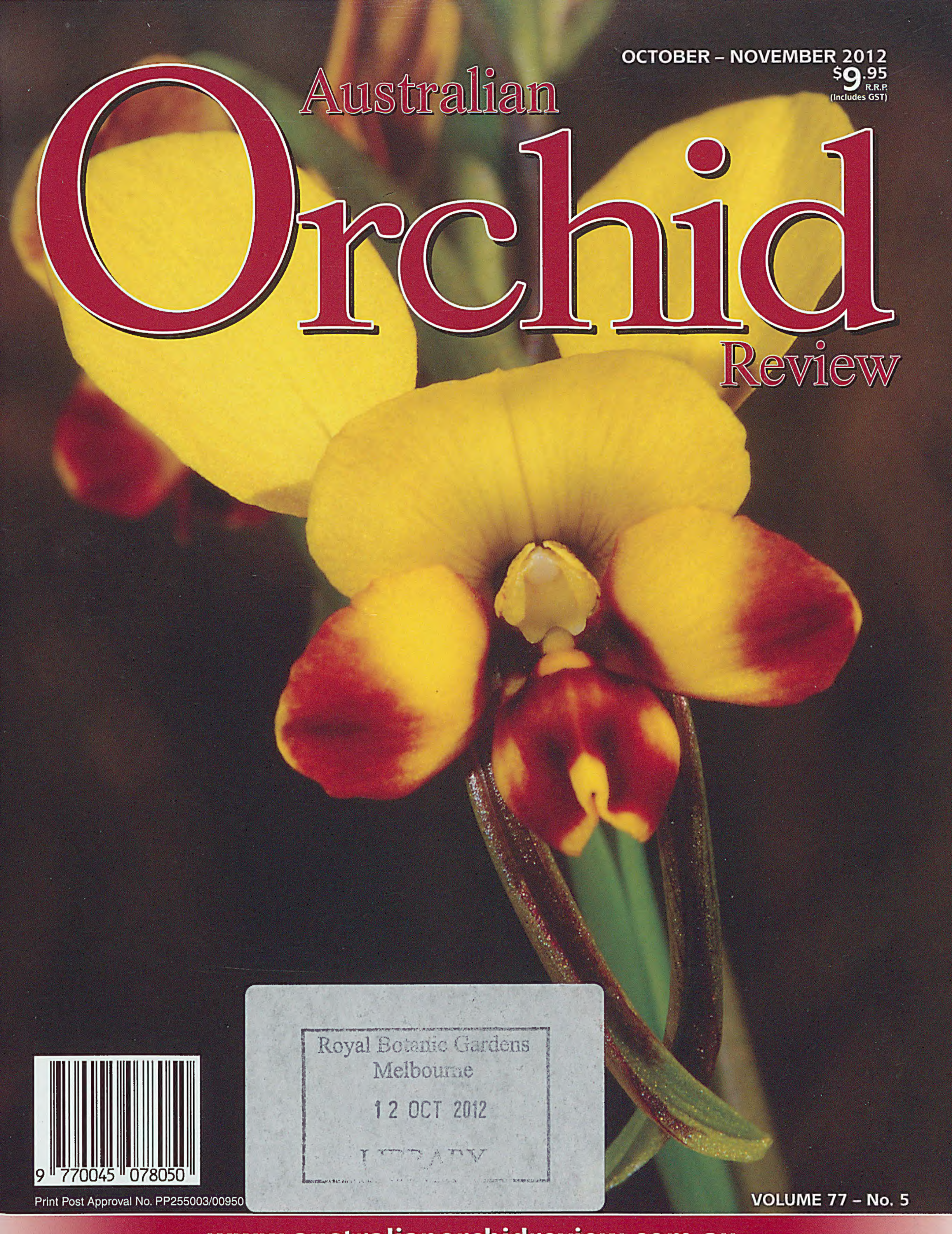

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From the Editor's Desk

Many of us know Jim Cootes through his impressive catalogue of informative articles published over the years, especially those dealing with his beloved Philippines orchid species, for which he is an acknowledged world authority. Jim has made many new discoveries and has trained many students in the botanical field. His prolific writings have been welcomed throughout the orchid community for both the sharing of new and accurate information. In this issue, Jim gives us an introduction to the wonderful genus *Epigeneium*.

Phil Spence is one of Australia's most innovative hybridisers. Over the years he has made many wonderful new hybrids, often between distantly related species within the same genus. His work with the genus *Dendrobium* is a classic example. He has made many unique combinations between horticulturally attractive species from different Sections of the genus, which many of us had not even dreamt of. So how does he get so many tricky hybrids to set seed capsules and subsequently young seedlings? Yes, he does have a few tricks that have proved the difference between success and failure. In this issue Phil, for the first time in print, shares with us many of his thoughts and tips for successful pollination and hybridising.

David Jones and Chris French describe a new species of *Diuris* from Western Australia. These donkey orchids are a distinctive part of Australia's orchid flora. Apart from thorough descriptions, this paper also features superb colour photographs of this new species and one of its close relatives.

How do people grow orchids in extreme climates? In conditions where you can literally be snowed-in for months, just how can you grow tropical orchids? The article by Jean Allen-Ikeson & Gail Schwarz on *Orchid Growing in Canada* highlights some of the obvious hurdles presented to orchid growers in this and similar conditions, and how they get around these problems. I am sure you will find this fascinating reading.

Jim Brydie, a Past President of Orchid SPECIES (NSW) talks about his five favourite orchids. This series has proved very popular with readers and we have many more to publish.

Sadly, we note the passing of Wal Upton in his 90th year. Amongst a long catalogue of achievements (see tribute by life-long friend Murray Corrigan), he was the key player in the formation of the Australasian Native Orchid Society (ANOS), and in later years was their Patron. Wal wrote a number of popular orchid books, with the main ones on the native genera *Dendrobium* and *Sarcochilus*. Our deepest condolences are extended to his beloved wife Jill and family.

There is also a tribute to the late Kevin McFarlane who passed away in 2009. This was written by his daughters, at the request of the Australian Orchid Foundation. It has been published here to reach a wider audience.

Congratulations to Justin Tkatchenko, President of the Orchid Society of Papua New Guinea, on his recent election victory representing the Social Democratic Party. Justin becomes the Honourable Member of the Moresby South Electorate for the PNG Government. ■

David Banks
Australian Orchid Review
david@hillsdistrictorchids.com

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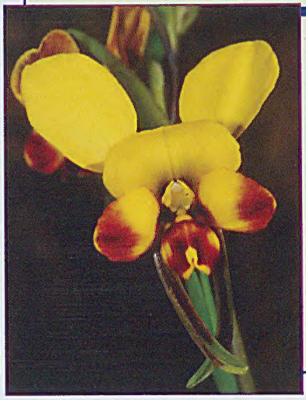
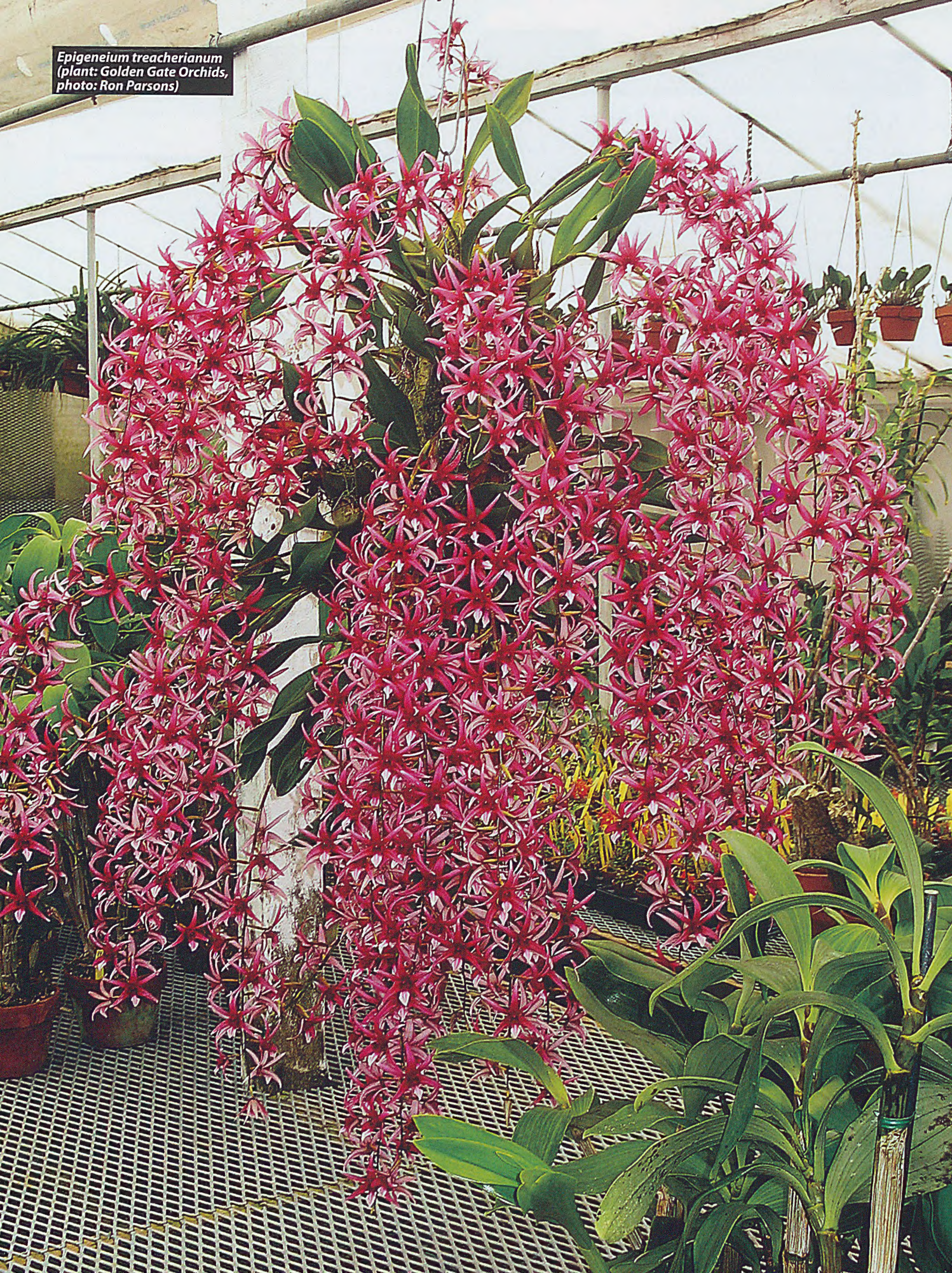


Cover Shot

Diuris perialla is a new species of Donkey Orchid from Western Australia that is formally described in this issue.

Photo: © Christopher J. French



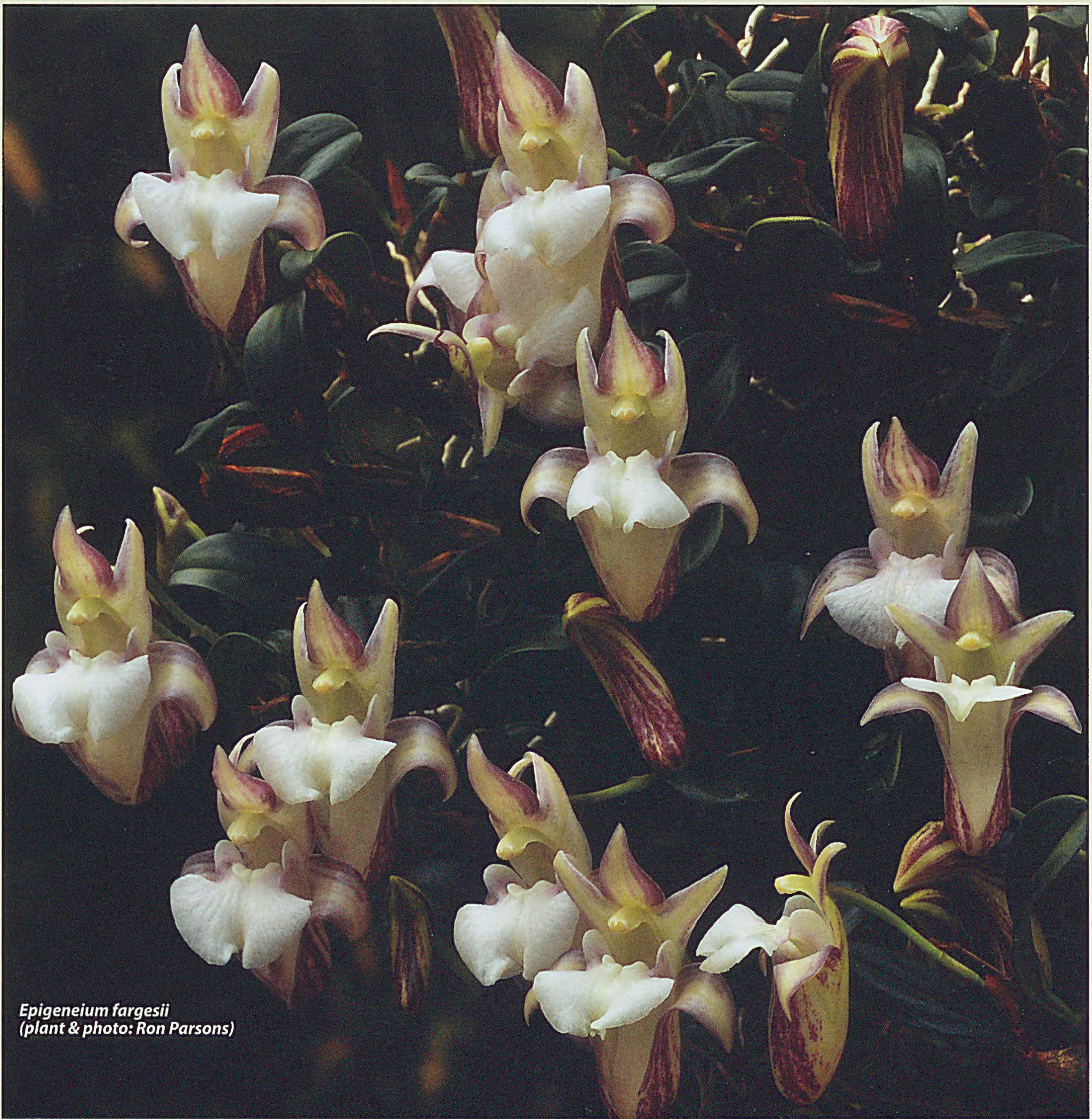
Epigeneium treacherianum
(plant: Golden Gate Orchids,
photo: Ron Parsons)

Some Beautiful *Epigeneium* Species

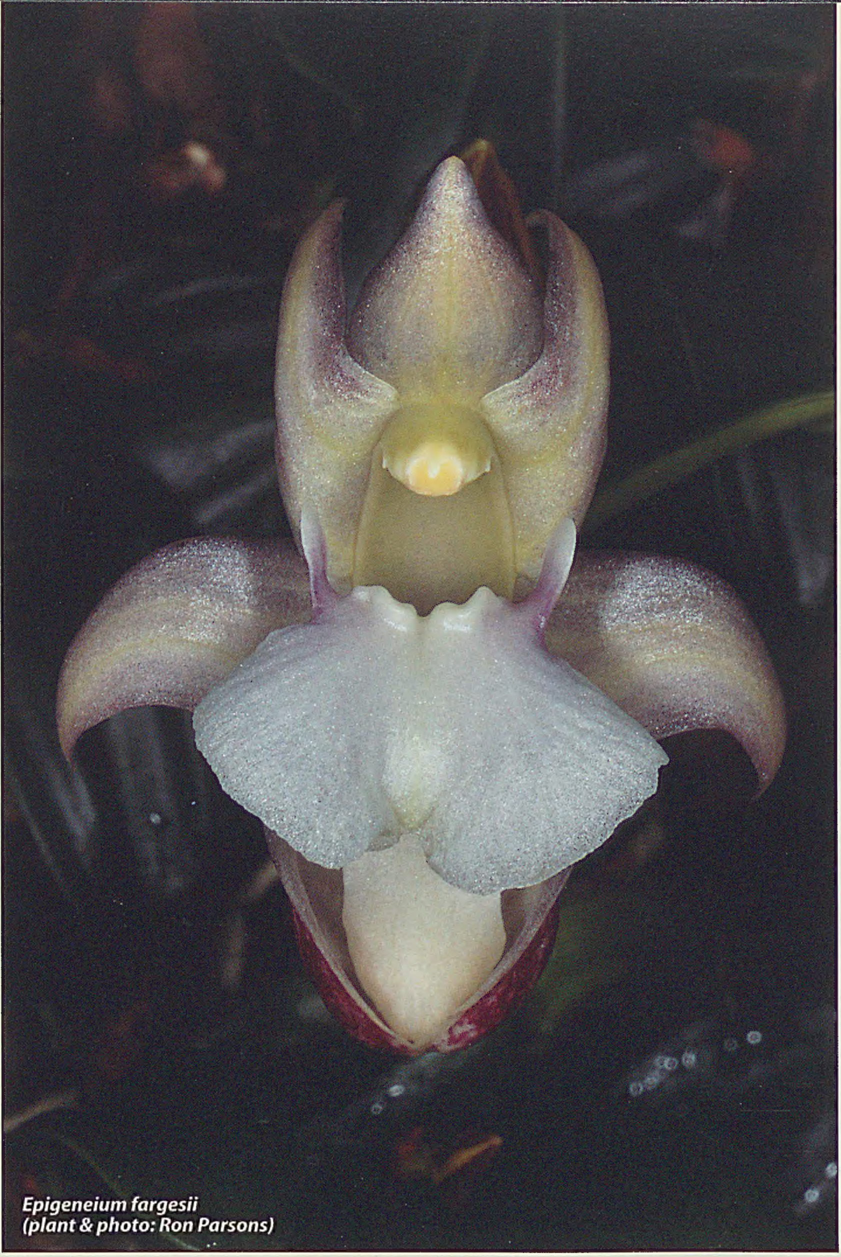
by Jim Cootes & George Tiong

In the orchid world there are many beautiful, and spectacular species, but some of the most stunning belong to the genus *Epigeneium*.

Historically, the eminent English botanist Dr. John Lindley created the genus *Sarcopodium*, (meaning "fleshy foot", referring to the mentum or spur), in 1850, for a group of plants which includes the species known today as *Epigeneium amplum*. Schlechter (1912) reclassified *Sarcopodium* as a section within the genus *Dendrobium*. Many *Epigeneium* species were therefore originally named as members of the genus *Dendrobium*. Indeed, some taxonomists argue that they should be placed back within *Dendrobium*.



Epigeneium fargesii
(plant & photo: Ron Parsons)



Epigeneium fargesii
(plant & photo: Ron Parsons)

François Gagnepain proposed the genus *Epigeneium* in 1932, in the *Bulletin du Muséum National d'Histoire Naturelle, Paris*. The generic epithet refers to the position of the petals and lateral sepals on the column foot. The type species for this genus is *Epigeneium fargesii* (Finet) Gagnepain. DNA analysis indicates that the ancestors of *Epigeneium* and *Dendrobium* diverged before the formation of the northern and southern clades of *Dendrobium*, and have evolved independently since.

There has been some controversy regarding the composition of the genus; however, the three morphological subgroups (Garay & G. Romero, 1999) are widely accepted:

- **Section *Epigeneium*** – one flower, usually one leaf; column foot long and drooping.
- **Section *Katherinea*** – one flower, two leaves; column foot shorter and deflexed at a right angle.
- **Section *Racemosum*** – raceme of several to many flowers, two or three leaves.

The distribution of *Epigeneium* is northern and does not cross Wallace's Line. There are approximately 40 species and they are found from Taiwan, through the Himalayas to India, south-east Asia and the Philippines. It is quite interesting that no *Epigeneium* species have yet been found on the island of Sulawesi. The islands of Borneo with at least 13 species, of which 9 are endemic; and Sumatra with at least 11 species, 7 of which are endemic, appear to be the centres of distribution.

The genus *Epigeneium* shares a number of morphological features with the *Bulbophyllinae*, and some authorities consider that it may represent a link between the two subtribes *Dendrobiinae* and *Bulbophyllinae*. The unique characteristics of the genus include having a granular root surface and creeping or climbing, often elongated rhizomes. The pseudobulbs have one-internode, are often quadrate (or angular), and have one to three stiff, leathery leaves at the apex. The inflorescences consist of one or more long-lasting, relatively large stellate flowers, often light coloured, with a narrow three-lobbed labellum.

Epigeneium species are generally forest plants, preferring the sunny crowns of mountain forest trees with good air movement. It is therefore valuable to simulate these growing conditions in cultivation – bright, well-drained positions. We find that when plants are transferred from pots onto cork mounts, they respond very quickly by putting out new roots onto the bark. However, some growers report that plants resent being disturbed and can be slow to re-establish.

A Selection of Species:

The type species of the genus, ***Epigeneium fargesii***, is native to the eastern Himalayan region of China, Bhutan, Thailand and Taiwan. It is a cool-growing creeping miniature epiphyte, with ellipsoidal-fusiform, weakly curved pseudobulbs spaced about 0.5-1 cm apart. The solitary leaf atop each pseudobulb is oblong and leathery with a distinct mid-vein. The single flower, held above the leaf, has a waxy texture and is relatively large in comparison with the plant at 2 cm across. The plant is uncommon in Australian collections.

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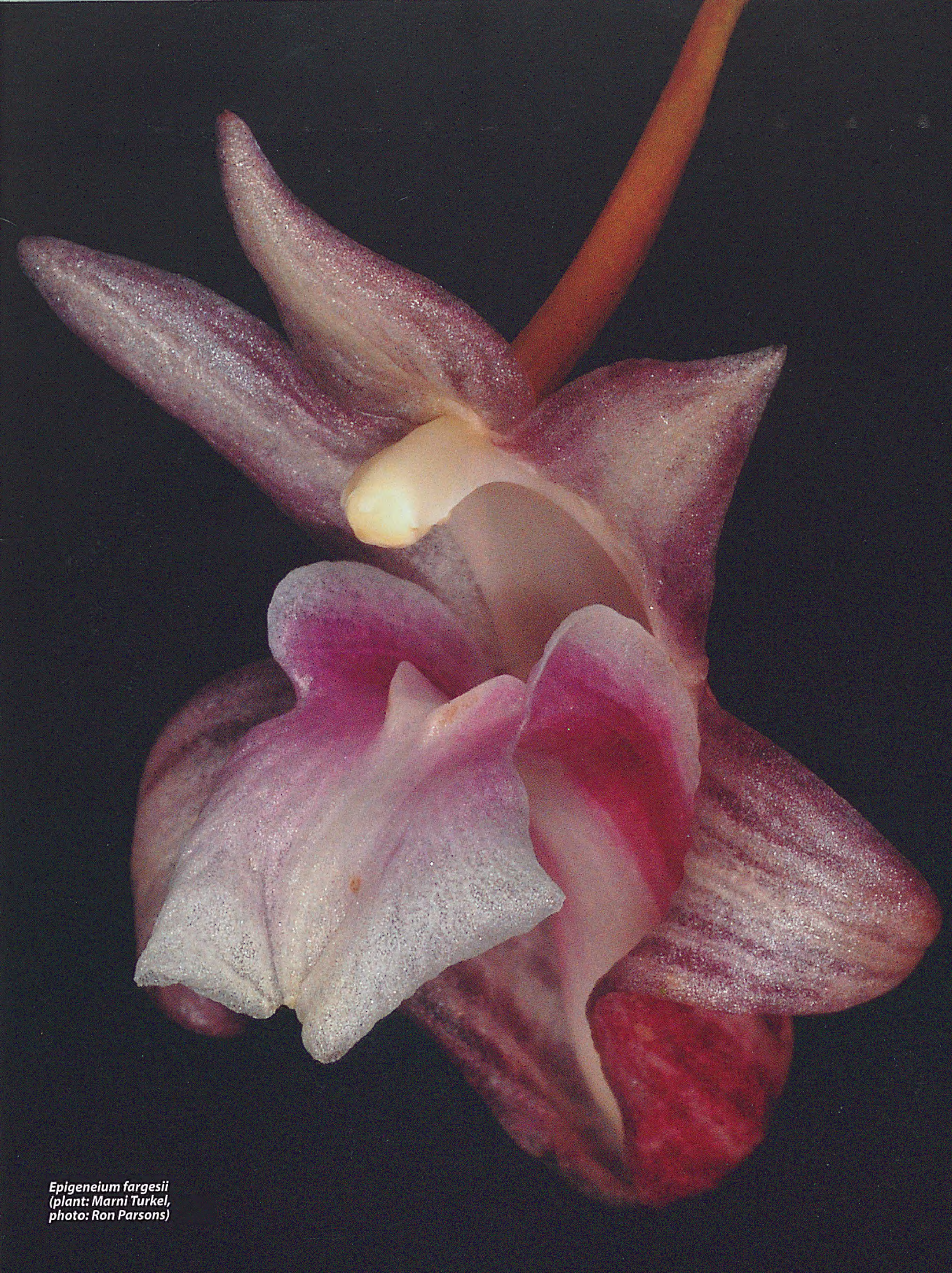
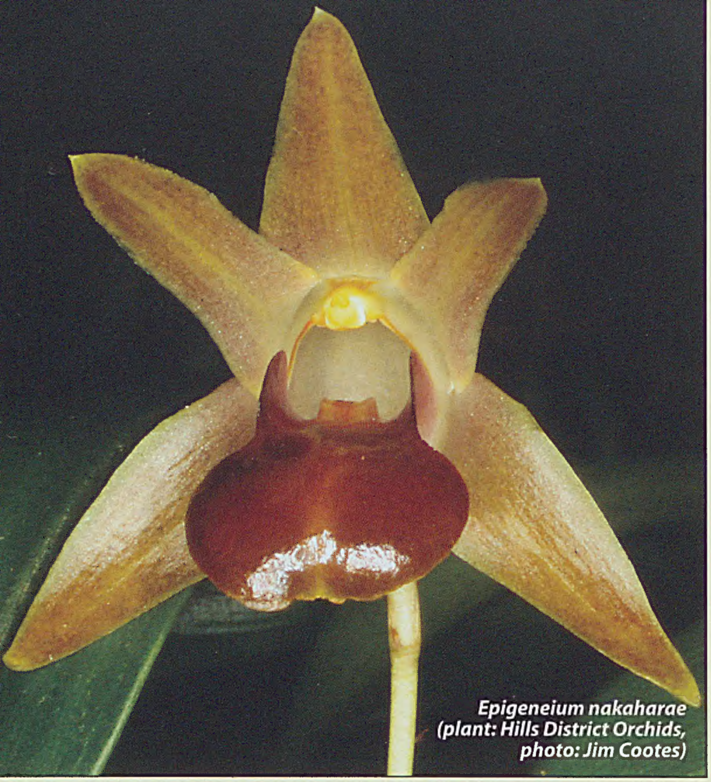
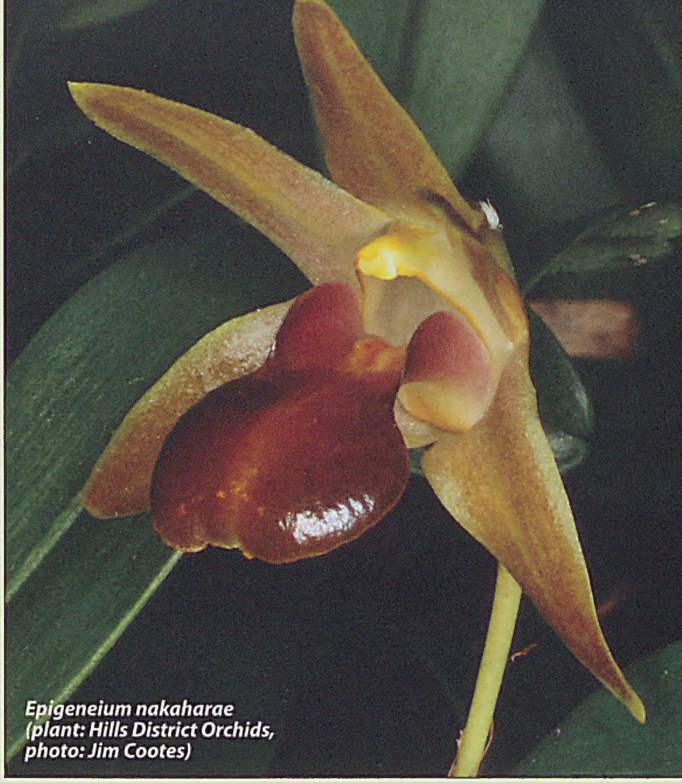


***Epigeneium fargesii* (plant: Marni Turkel, photo: Ron Parsons)**

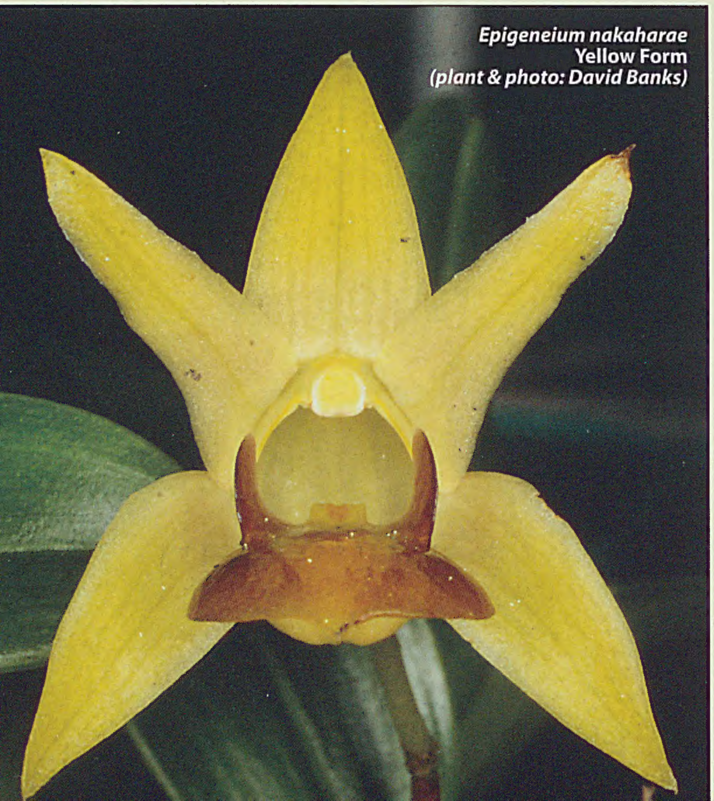


Epigeneium nakaharae
(plant: Hills District Orchids,
photo: Jim Cootes)



Epigeneium nakaharae
(plant: Hills District Orchids,
photo: Jim Cootes)

One of the more widely cultivated species is ***Epigeneium nakaharae***, in the section *Epigeneium*, and endemic to the central mountain range of Taiwan. This is a creeping miniature epiphyte with somewhat flattened, angular and closely spaced pseudobulbs topped with a single leaf. The single flower is short-lived, waxy and about 3 cm in diameter. Successful cultivation requires intermediate conditions with high year-round humidity. It will form a specimen quickly if conditions are ideal. There is also a rarer yellowish form in cultivation, but is not an albino.



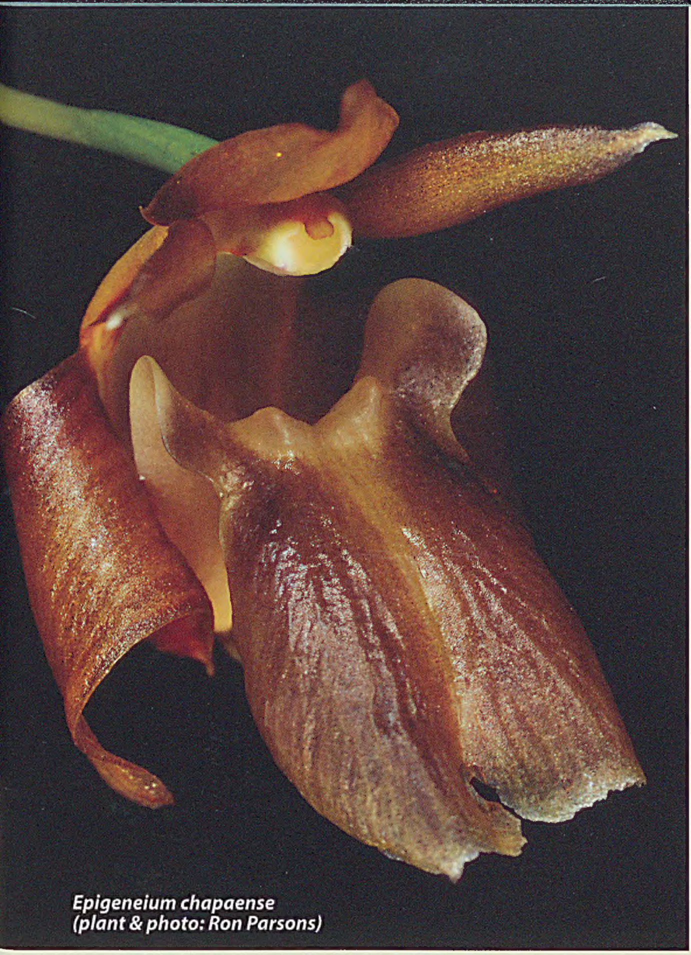
Epigeneium nakaharae
Yellow Form
(plant & photo: David Banks)

In contrast, another member of the same section, ***Epigeneium chapaense*** is rarely seen in cultivation. Endemic to the mossy humid forests of Vietnam, this small sized, creeping epiphyte has ellipsoid and slightly curved pseudobulbs with solitary leathery leaves. The unusual but nevertheless beautiful flower has substance and measures about 3 cm across.

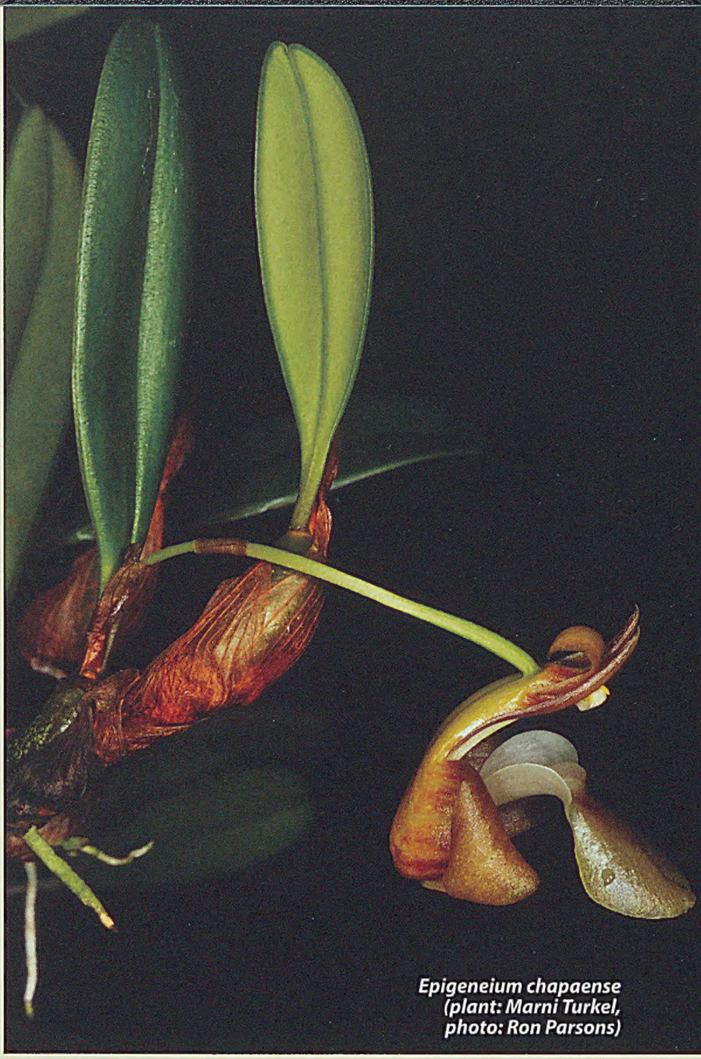
Epigeneium amplum is a small creeping epiphyte in the section *Katherinea*, with widely spaced squarish ovoid to ellipsoidal pseudobulbs, two leaves and a solitary flower. The flower is large, at 5-7.5 cm in diameter, with a heavy texture, and is fragrant and long-lasting. The species is found in montane forest areas of the Himalayas (India, Nepal, Bhutan) and Indochina, and is occasionally seen in orchid collections in Australia. There is some confusion with the related ***Epigeneium coelogyne***, and indeed some authorities consider that the two are synonyms of the same species. We concur that there are enough differences to keep these two taxa separate. There is also an unusual colour form, perhaps a new species that has recently entered cultivation from Yunnan Province in China.

Epigeneium rotundatum is a rarely seen, small species from the Himalayan regions, with ovoid pseudobulbs carrying two elliptic-oblong notched leaves. The single flower resembles *E. nakaharae* in structure; however, the presence of two leaves places this species in the section *Katherinea*.

Epigeneium acuminatum is endemic to the Philippines and is one of the smaller growing species in the section *Racemosum*. The plant is only about 7 cm tall and bears a pair of leaves on the apex of the four-angled pseudobulb. The inflorescence is upright and the raceme consists of up to 20 blooms, each about 5 cm in diameter. This plant is quite rare in Australian collections and this might be because of the difficulty of getting the plants through the quarantine process and system. Plants grown from seed would be a much better choice if attempting to grow this delightful species.

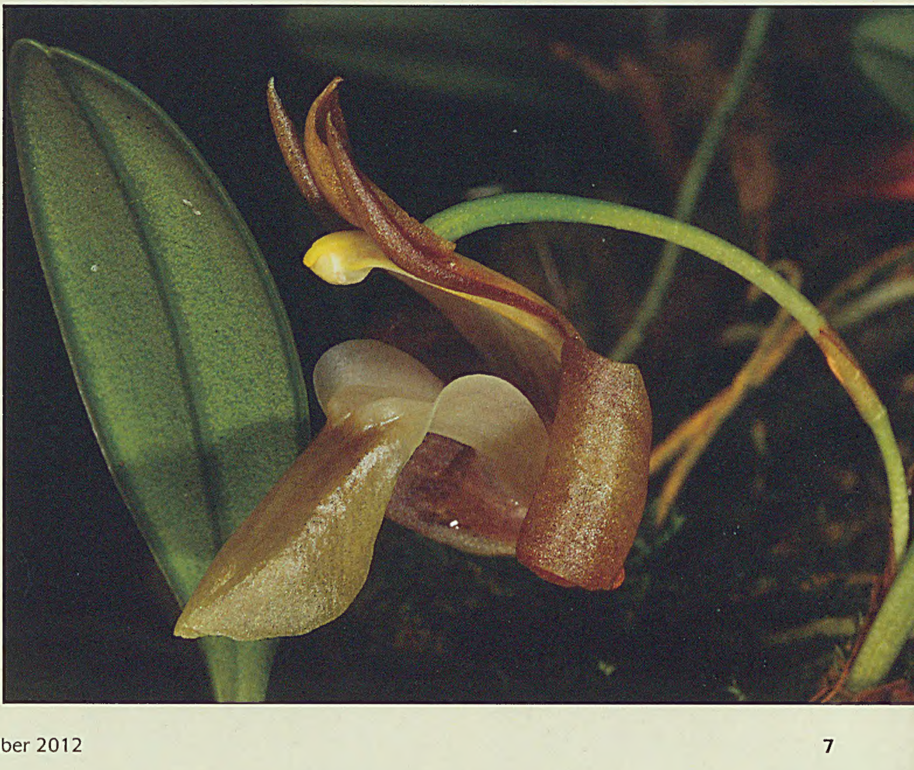


Epigeneium chapaense
(plant & photo: Ron Parsons)



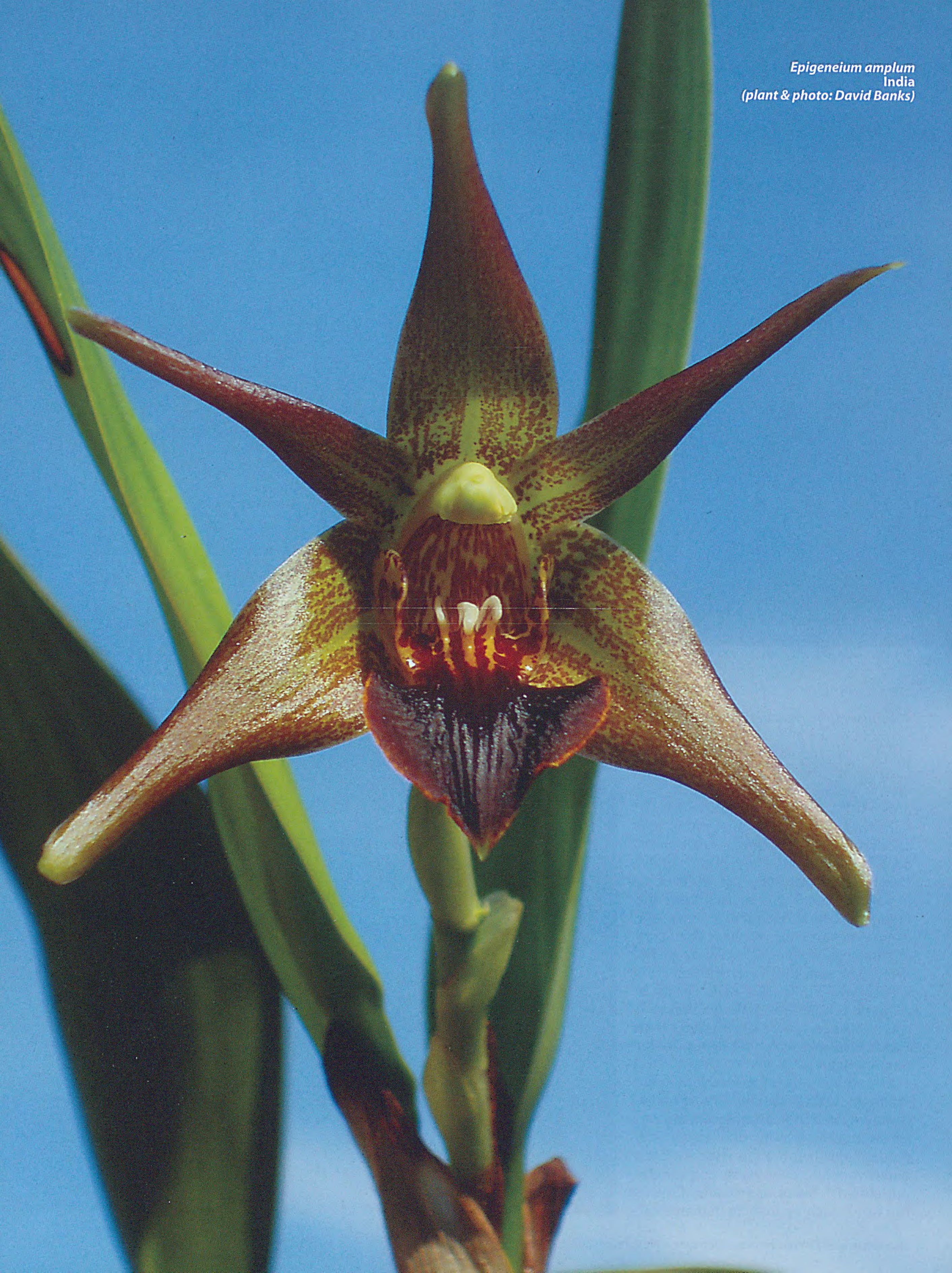
Epigeneium chapaense
(plant: Marni Turkel,
photo: Ron Parsons)

Below:
Epigeneium chapaense
(plant: White Oaks Orchids,
photo: Ron Parsons)

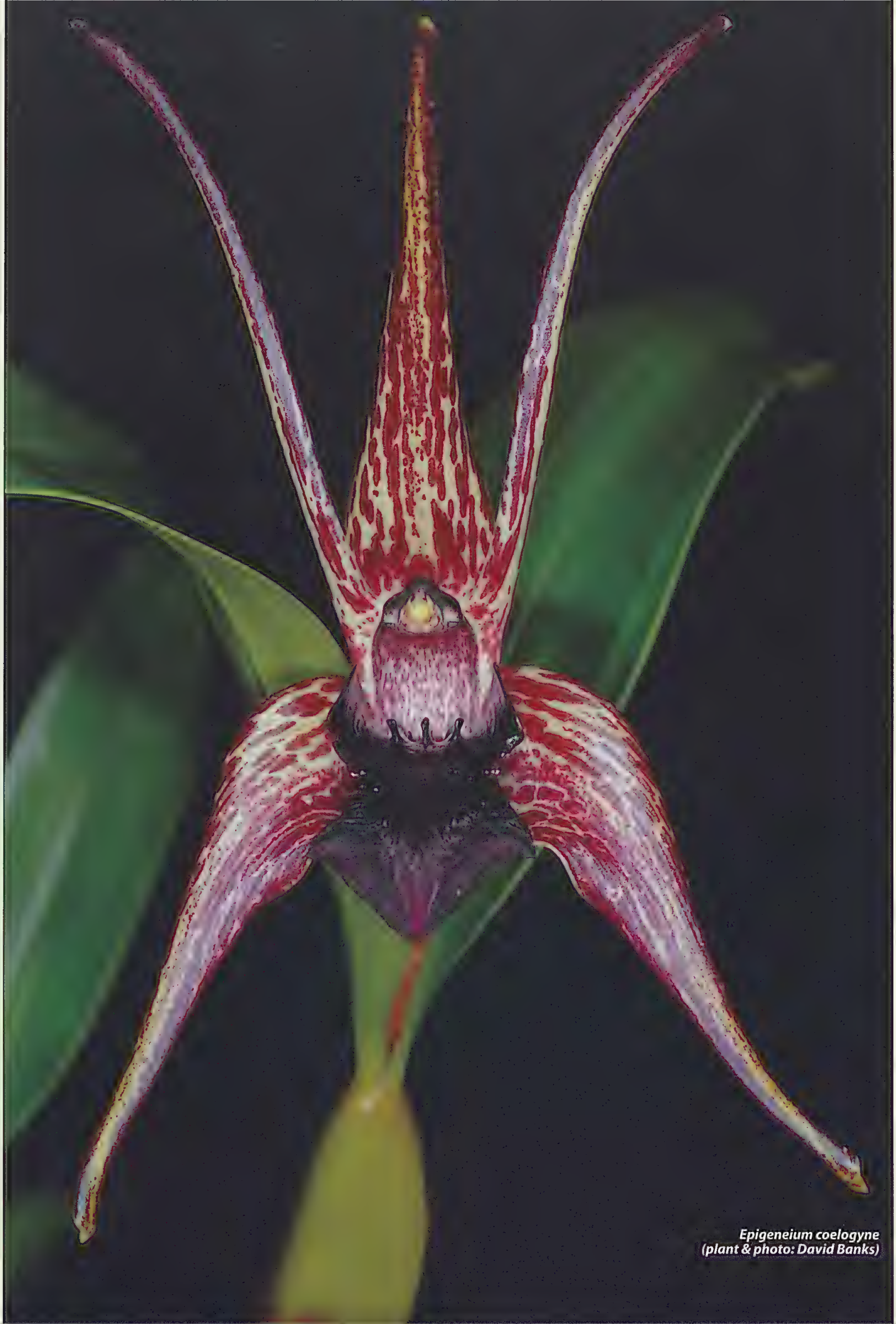


Epigeneium treacherianum is found in both Borneo and the Philippines, and is also a member of the section *Racemosum*. The plant is much larger than *E. acuminatum*, as are the beautiful flowers (7.5 cm in diameter), which are quite variable in their colouration and are fragrant. The colours range from deep reddish-pink to pure white. Continual attempts by the authors to import plants of this species from the Philippines have resulted in only one clone ever surviving. We have been very fortunate to be able to get plants, grown from seed, and these are thriving. This species was known for many years as *E. lyonii*, but became synonymised as it was published almost 30 years later than *E. treacherianum* which takes priority for naming rights.

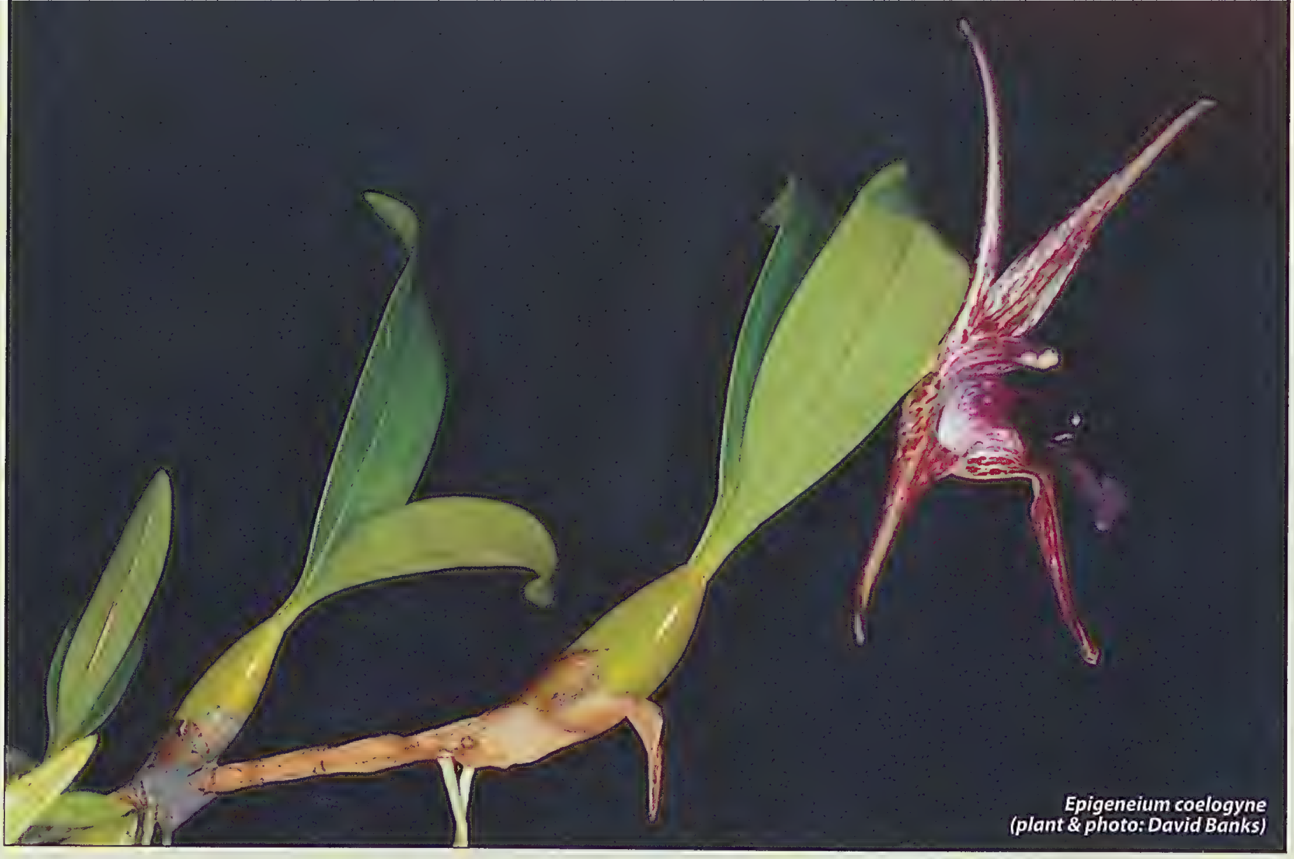
The third species endemic to the Philippines, ***Epigeneium stella-silvae***, is closely related to *E. acuminatum*, but can be distinguished by its smaller size, the pseudobulbs being 3 cm wide by 2 cm high, while the inflorescences are more upright with fewer and smaller flowers (up to 10, each up to 4 cm in diameter).



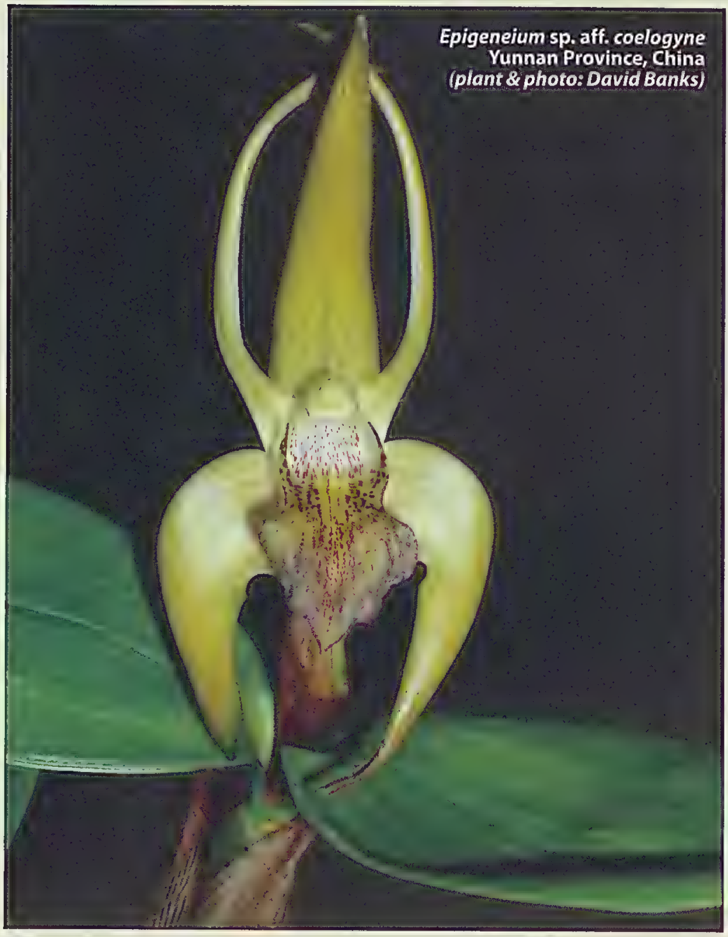
Epigeneium amplum
India
(plant & photo: David Banks)



Epigeneium coelogyne
(plant & photo: David Banks)



Epigeneium coelogyne
(plant & photo: David Banks)



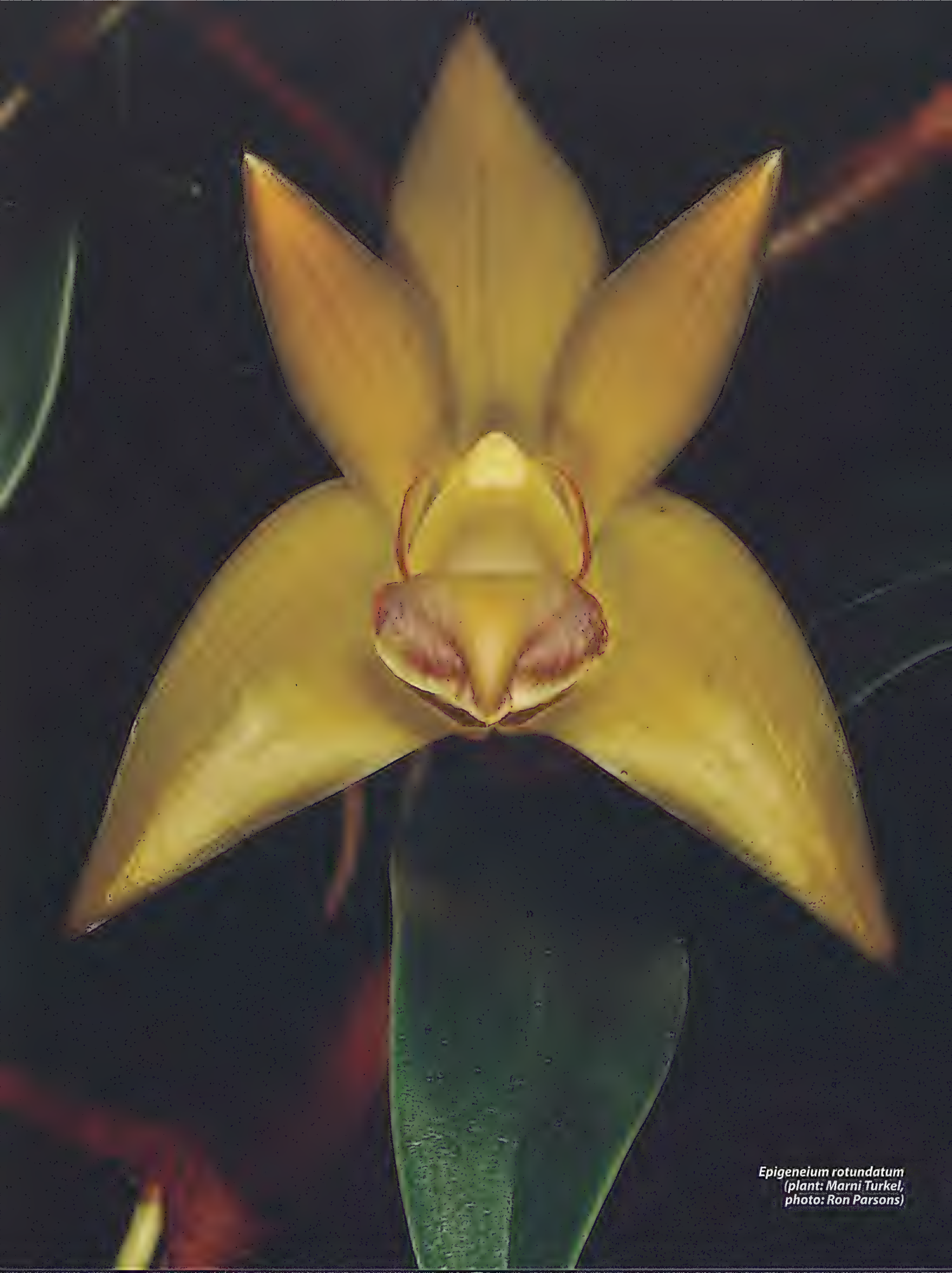
Epigeneium sp. aff. coelogyne
Yunnan Province, China
(plant & photo: David Banks)

Another plant that can be found in collections is ***Epigeneium triflorum***, in the section *Racemosum*, which comes from the eastern mountains of Java. This is an attractive, compact plant, with angular pseudobulbs about 4 cm in length, each with a pair of leaves about 25 cm long. The inflorescence is arching to pendulous, carrying anywhere between 5 and 17 creamy-white stellate flowers. Three varieties of the species are recognised. Cultivation is easy, and plants are best grown in a shallow basket or attached to a slab in cool to intermediate conditions. Bright light conditions are required for blooming. This orchid is often mislabelled in Australian collections as ***Epigeneium cymbidioides***, a separate valid species that is quite similar in many respects.

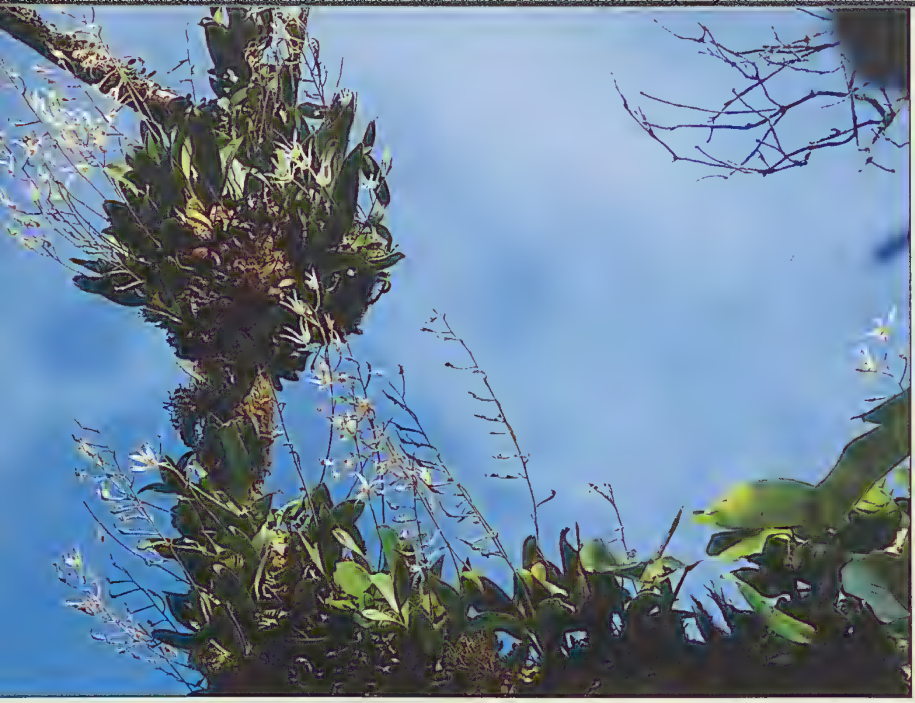
Native to the montane cloud forests of Vietnam is ***Epigeneium cacuminis***, which is related to *E. acuminatum* in the section *Racemosum*. Like its relative, each inflorescence on a well-grown plant can carry up to 20 creamy-white blooms with a bright orange labellum, which has reddish-brown spots.

Cultivation:

Many species of this lovely genus are amenable to cultivation and deserve to be more widely grown in the temperate parts of Australia. Intermediate conditions, with high humidity and bright light conditions are the main requirements, and they will reward the enthusiast with reliable and most attractive blooms. Many of these species are quite adaptable to pot or slab culture, however many of the rambling species are quite happy growing over the edges of the pot and are probably better suited to being mounted on horizontal rafts of either tree-fern or virgin cork.



***Epigeneium rotundatum* (plant: Marni Turkel, photo: Ron Parsons)**



Above: ***Epigeneium acuminatum*** *(photo: Ravan Schneider)*

Acknowledgements:

Our sincere thanks to David P. Banks for the use of his images of *Epigeneium amplum, E. coelogyne* (plus the Chinese sp. aff.), *E. nakaharae* (yellow form), *E. treacherianum* and *E. triflorum*; Dr. Nelson Geraldino (Philippines) for the use of his images of *E. acuminatum, E. stella-silvae* and *E. treacherianum*; Ron Parsons (USA) for the use of his images of *E. cacuminis, E. chapaense, E. fargesii, E. rotundatum* and *E. treacherianum*; and Ravan Schneider (Philippines) for the use of his images of *E. acuminatum* and *E. treacherianum*.

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Jim Cootes
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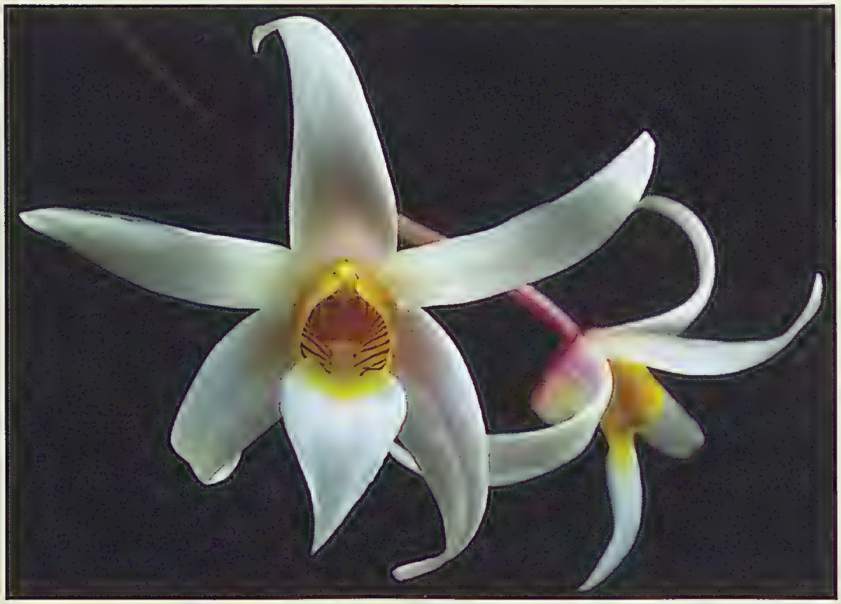

Left: ***Epigeneium acuminatum***
(photo: Dr. Nelson Geraldino)

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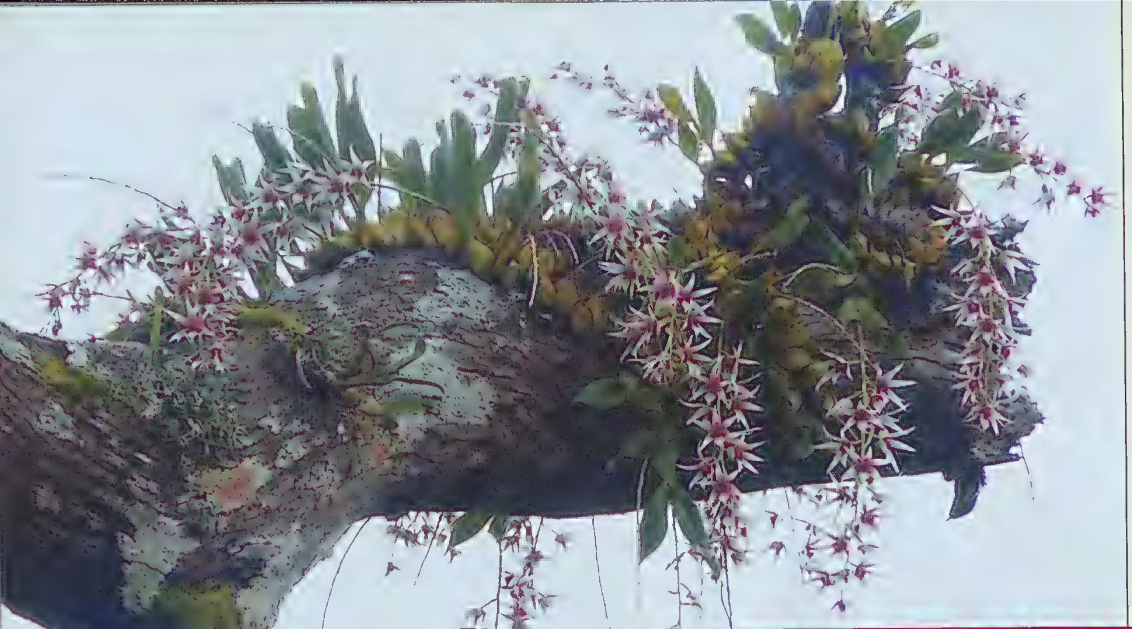
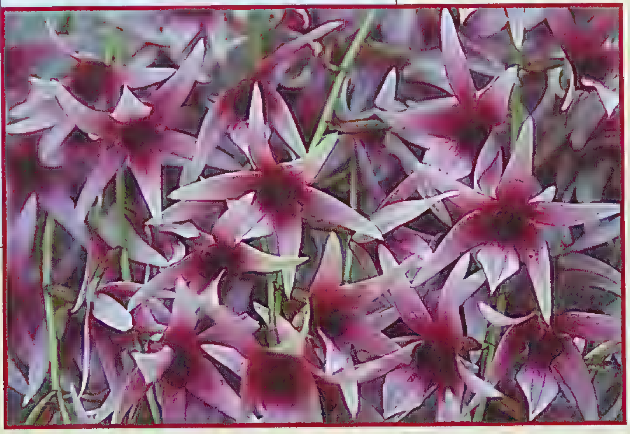
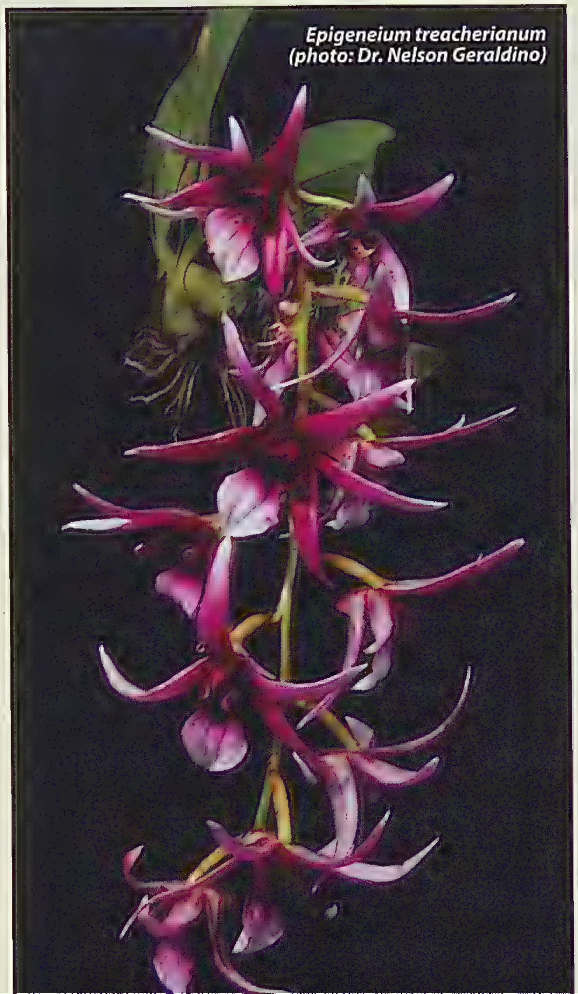


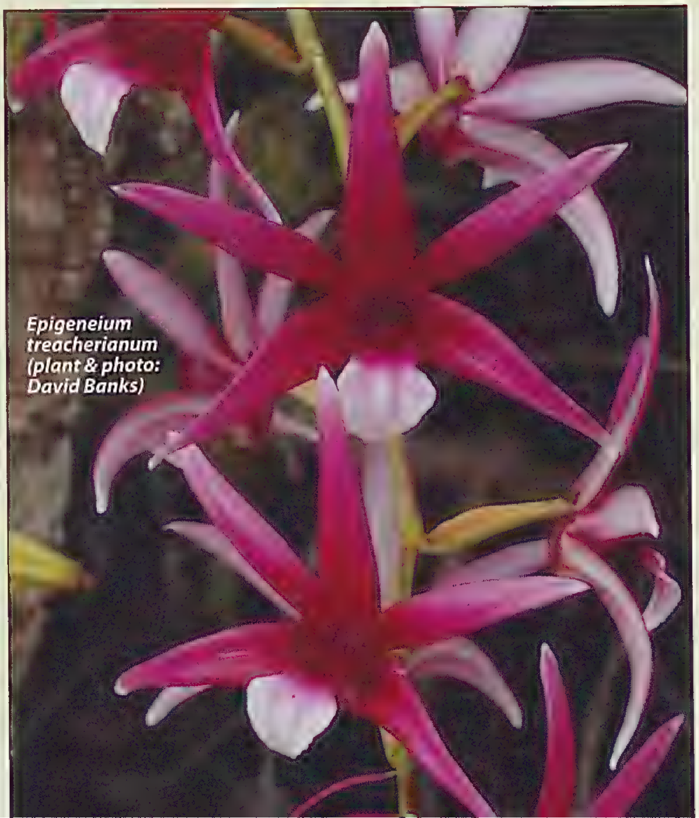
Left:
Epigeneium treacherianum
(photo: Ravan Schneider)

Below:
Epigeneium treacherianum
(photo: Ravan Schneider)

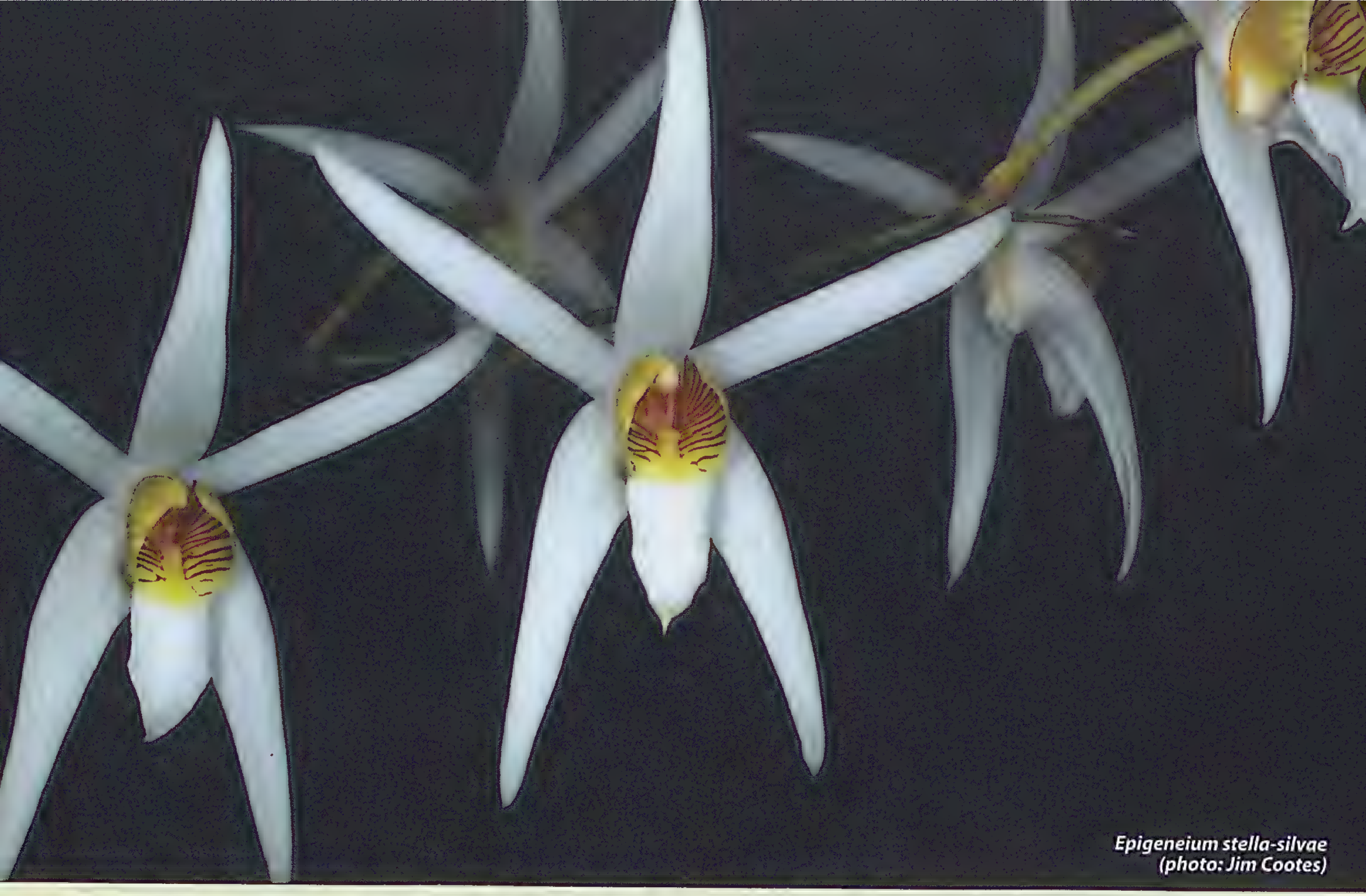




Epigeneium treacherianum (photo: Dr. Nelson Geraldino)



Epigeneium treacherianum (plant & photo: David Banks)



Epigeneium stella-silvae
(photo: Jim Cootes)

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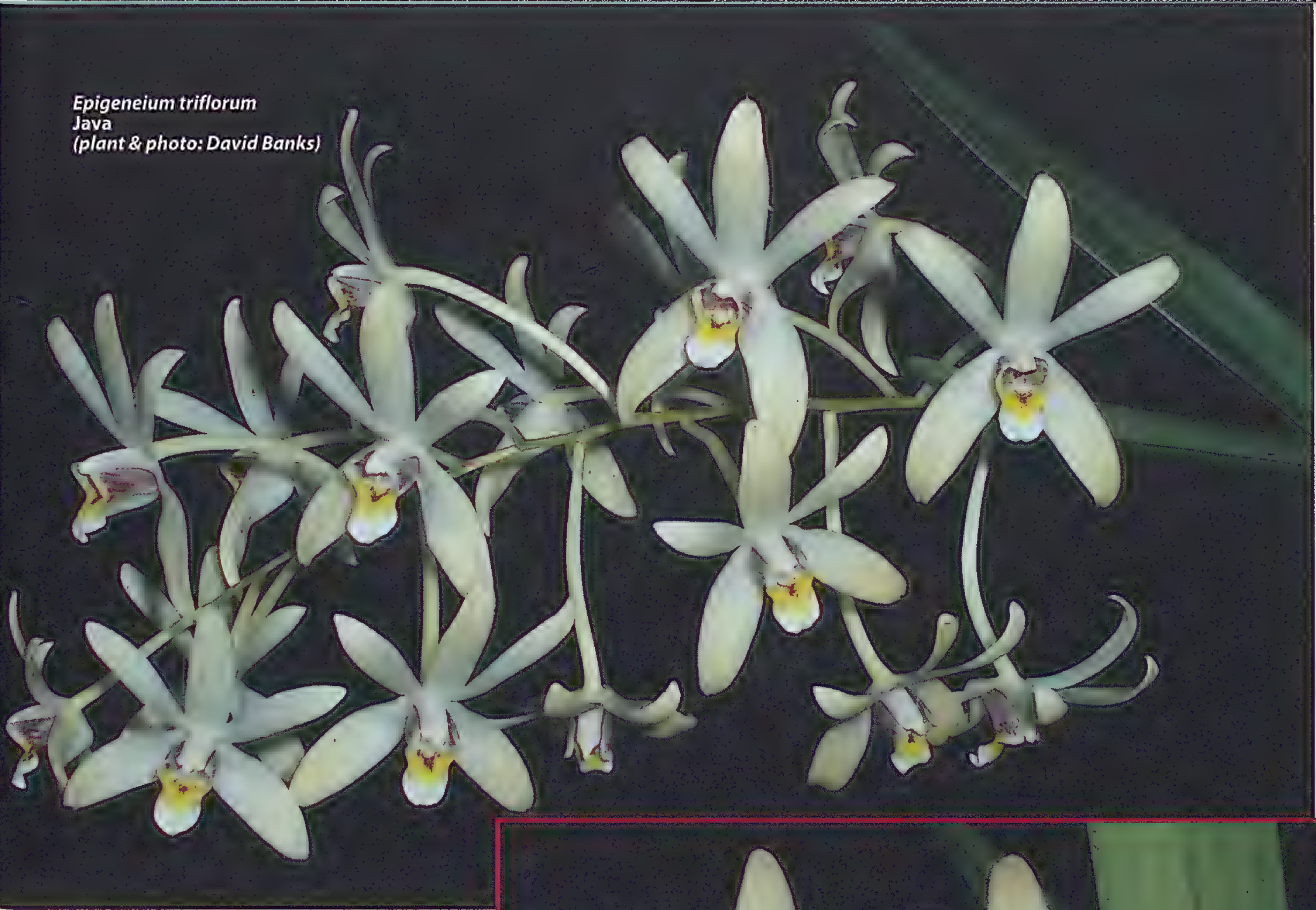

Epigeneium triflorum
Java
(plant & photo: David Banks)

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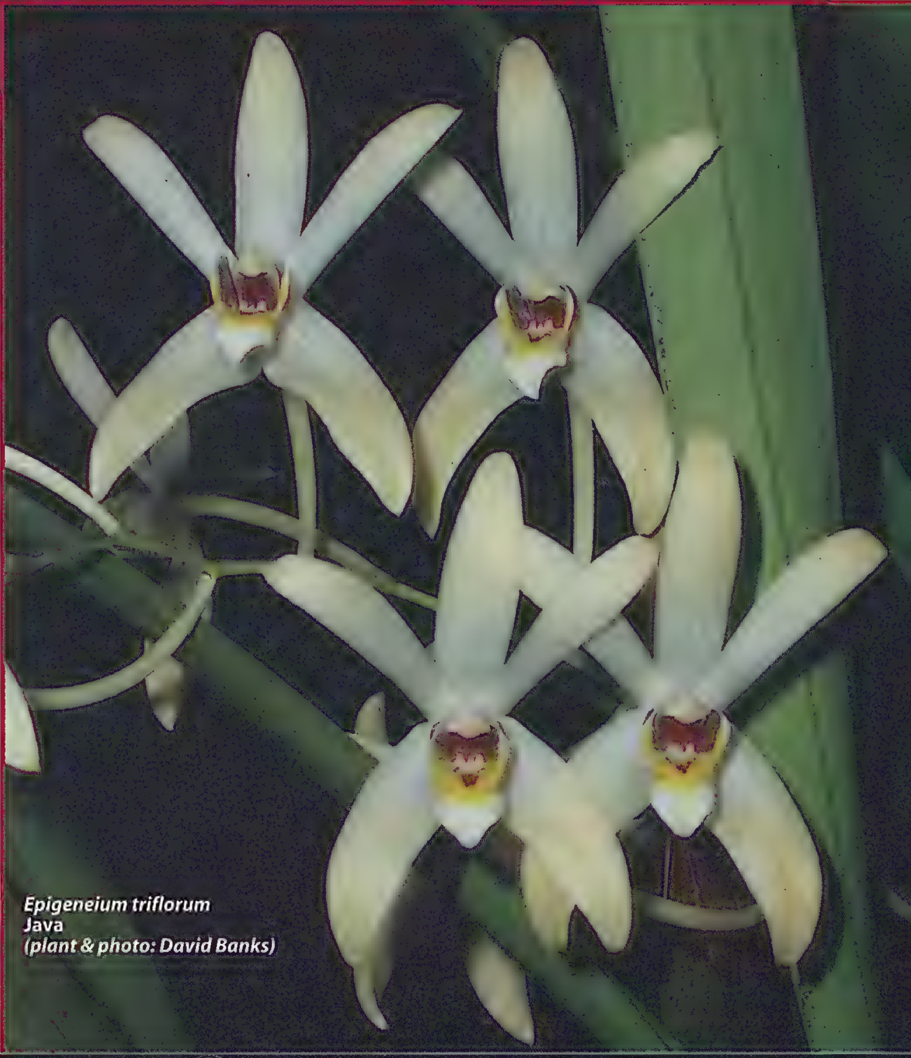
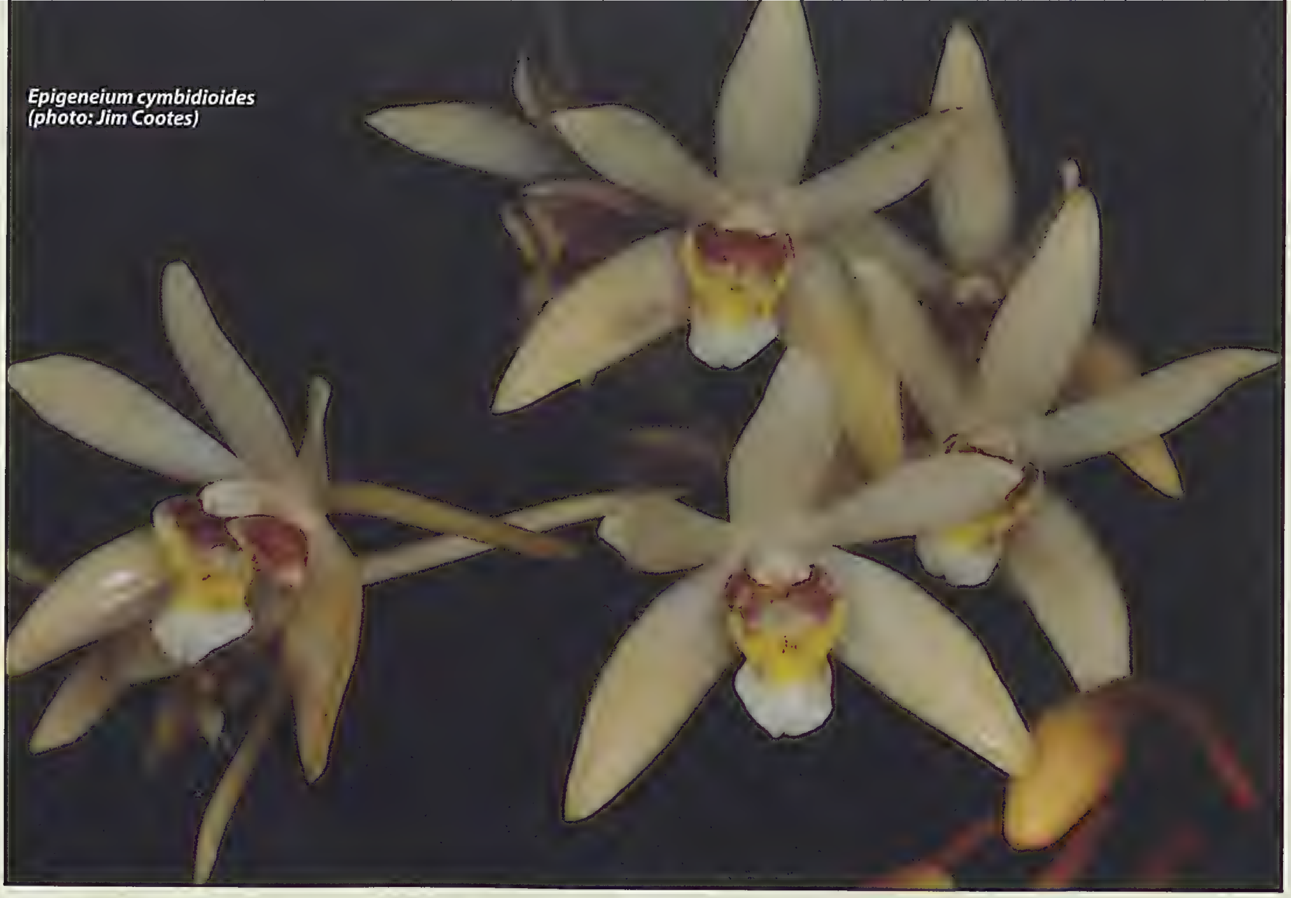
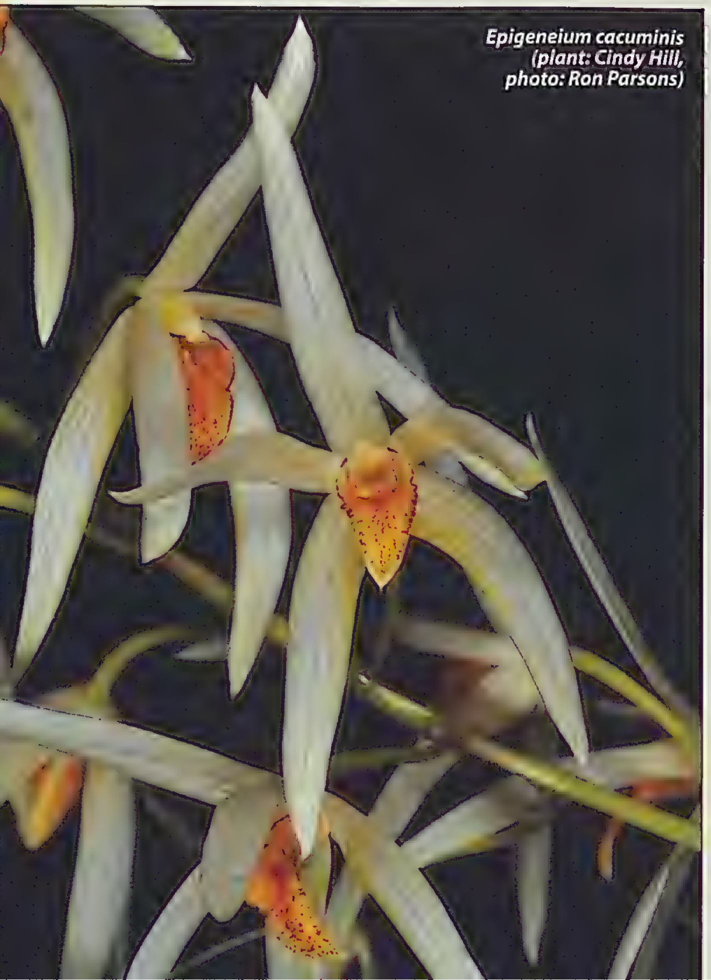


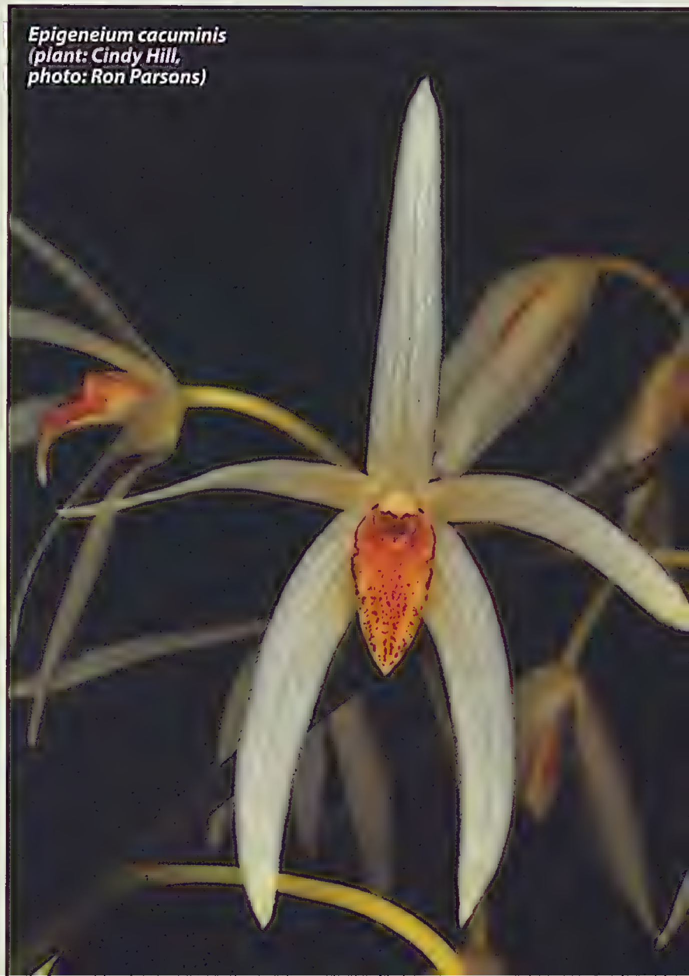
Epigeneium triflorum
Java
(plant & photo: David Banks)



Epigeneium cymbidioides (photo: Jim Cootes)



Epigeneium cacuminis (plant: Cindy Hill, photo: Ron Parsons)



Epigeneium cacuminis (plant: Cindy Hill, photo: Ron Parsons)

Odontioda Prince Vultan, a Royal Flower

by Andy Easton

This interesting story starts in 1981. I was visiting the British Orchid Growers' Association show in London and was invited by Eric Young to sit in with the Royal Horticultural Society (RHS) Orchid Committee for Judging. The Chairman of the Orchid Committee at that time was a pompous chap named Maurice Mason, VMH etc etc. You know the type. Mason named a screening committee of two to review the 30+ entered plants so the distinguished judges would not be wasting their time looking at mediocre specimens. For whatever reason, only two plants were screened out.

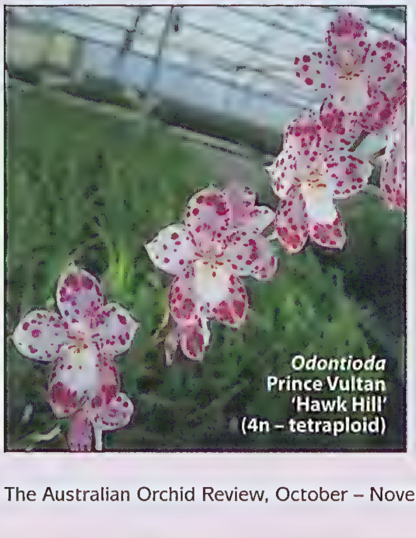
Judging proceeded harmoniously until all the chosen plants had been given their moment in the sun. Mason made some flippant remark to the effect that the judging was over unless anyone on the committee wanted the two losers considered. Eric Young rose immediately to his feet and stated that he most definitely did want one of those plants considered! You could have cut the air with a knife. The two members of the screening committee reddened immediately.

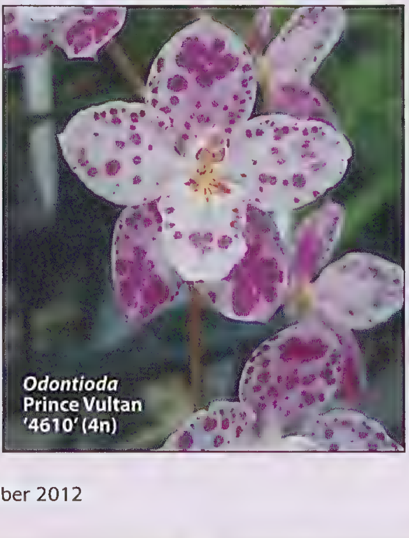
Said plant was *Odontioda* Shelley 'Spring Dress', bred and exhibited by Keith Andrew Orchids. Its parentage was *Odontioda* Heatonensis x *Odontoglossum pescatorei* (*Odm. nobile*). Eric Young proposed an AM/RHS for the plant which was approved by all the committee with the exception of two now very chastened members of the screening committee. Some of us recognised that we were actually seeing a wonderfully innovative breeding line that day.

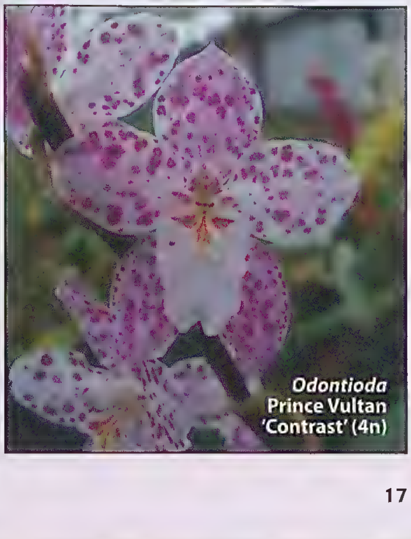
What was *Odontioda* Heatonensis and why had it lapsed into almost total obscurity? The hybrid was registered in 1906 by Charlesworth and Company and had been used by them only in five registered hybrids up till 1921. From then until Keith Andrew found the plant and recognised its potential, not one hybrid had appeared in sixty years. Where was Heaton from which the named derived? It was actually a suburb of Greater Manchester when the Manchester and North of England Orchid Society, which predated the RHS Orchid Committee, was awarding outstanding Odontoglossums and Cattleyas. *Odontioda* Heatonensis is the primary intergeneric hybrid between *Cochlioda sanguinea* and *Odontoglossum cirrhosum*.

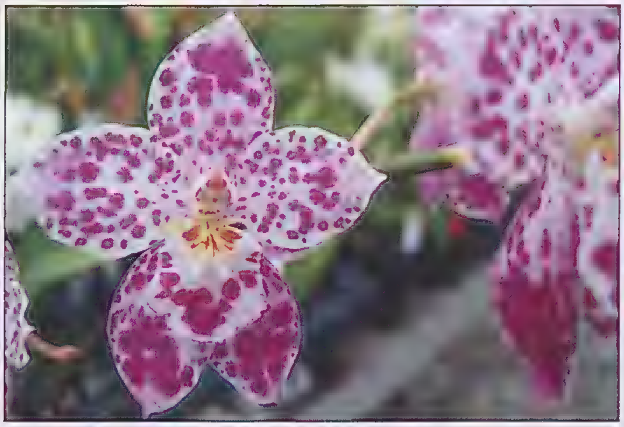
Keith gave me a division of *Oda.* Shelley 'Spring Dress' and when I moved to New Zealand in 1985, it went with me. It was obvious that the plant grew like a weed and within two years I had a very husky specimen. In a display in the NZ city of Wanganui, I exhibited *Oda.* Shelley 'Spring Dress' AM/RHS among all our salubrious Cymbidiums. I was off having breakfast and upon returning I was told I needed to get photos made because my plant had been awarded by the NZ Orchid Council judges. I enquired what the award was and was told the plant had been given an Award of Distinction. Ever the diplomat, I asked the Chairman if I might speak to some of the judges. Then I asked them to describe *Oda.* Heatonensis for me?? A great silence ensued. I then asked how, if they did not know what the parent looked like, how a judge could adjudicate that its offspring was distinct. I added that if the RHS Orchid Committee considered the hybrid worthy of an Award of Merit, I hoped they would not be offended if I declined the nothing award and didn't bother to get any pictures taken!

Bob Hamilton, of Berkeley, CA was also enchanted with *Oda.* Shelley. I am going to be a bit parochial and say at this point, the finest *Oda.* Shelley hybrid I have ever seen was the *Oda.* Shelley Anne, exhibited by Frank Brljevich at the New Zealand Orchid Society in 1981. Bob is one of the most intuitive *Odontoglossum* Alliance hybridisers in the world and leads the world in various pioneering techniques for doubling the ploidy of various genera. Bob started making *Oda.* Shelley hybrids and as his typical of the man, he also decided to revisit Shelley's ancestral species which of course were all up close and no further than one generation removed.

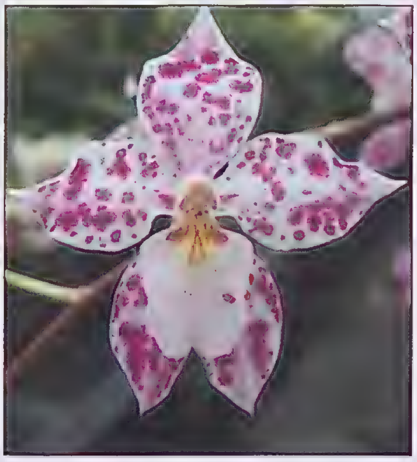

Odontioda **Prince Vultan 'Hawk Hill' (4n – tetraploid)**


Odontioda **Prince Vultan '4610' (4n)**


Odontioda **Prince Vultan 'Contrast' (4n)**



Left:
Odontioda
Prince Vultan
'Dot's Delight'
(4n)



Right:
Odontioda
Prince Vultan
(2n – diploid)

Bob is also a most generous friend and when I found myself back in California in 2007 and minus nearly all the *Odontoglossum* Alliance parents I had been quite successful with in New Zealand (the person I gave them to was such a poor grower they basically killed off hundreds of my plants!), he set out to share with me divisions and seedlings of good things.

One of the seedling crosses was the offspring of *Cochlioda sanguinea* and *Odm. pescatorei* (*Odm. nobile*) and they started flowering for me in 2009. Immediately I realised I was blooming a treasure and also that the percentage of converted tetraploids in the seedlings seemed abnormally high. I have to admit I became very cavalier about the plants and ended up gifting the diploids to anyone who had minimal interest though I had enough foresight to retain the best diploid, based again on vigour and floriferousness. I kept calling Bob and praising him for his achievement and he seemed rather too modest! Eventually however he started blooming the cross and a quiet smile of satisfaction appeared. Every *Odontoglossum* Alliance hybridiser that has been able to access the grex *Oda.* Prince Vultan, has become a believer. Plants are now with Bob Burkey in Hawaii and Keith Andrew in England.

Please don't look up Prince Vultan in any site connected to the RHS. They are inconsistent and have been trying to call *Cochlioda sanguinea, Symphyglossum sanguineum* or *Oncidium strictum* for example. Few of the serious breeders in the group are paying any intention to their reclassifications. We will never move away from the most perfect and

Above:
Odontoglossum cirrhosum
'Orquifollajes'

Left and far left:
Cochlioda sanguinea
(syn. *Symphyglossum sanguineum*)

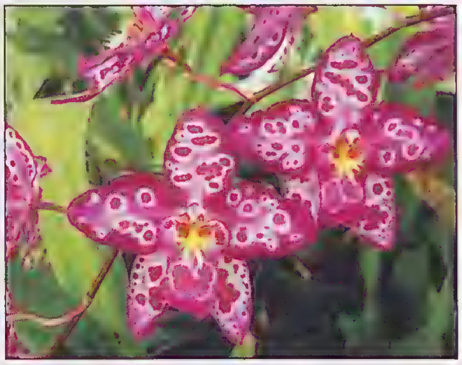
Below: *Odontioda* Heatonensis

beautiful Intergeneric creation of all, the *Vuylstekeara*. Don't turn over in your grave Mr. Vuysteke, we already have Vuylstekearas coming along from *Oda.* Prince Vultan and several superb Colombian Miltonias. *Vuylstekeara* (*Vuyl.*) is an intergeneric hybrid between the three orchid genera, *Cochlioda*, *Miltonia* and *Odontoglossum* (*Cda.* x *Milt.* x *Odm.*).

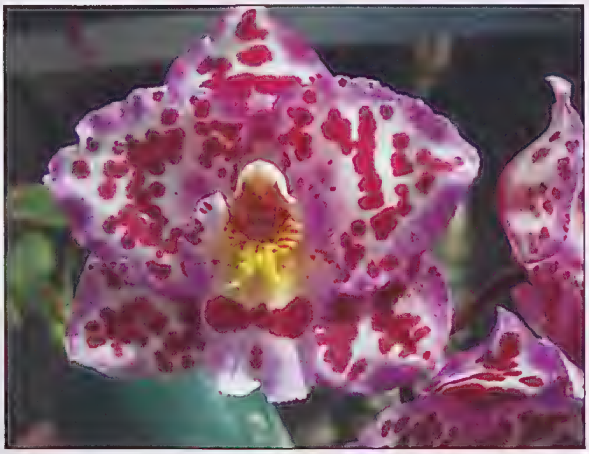
Now, let me gently chide you Australians for neglecting the legacy of a great Australian orchidist, Gerald McCraith. Gerald was an inspiration for me and many others in the orchid world for decades and he championed growing of the *Odontoglossum* Alliance in the Melbourne area. They are just not that difficult either. First and foremost you need good quality water. If you don't have that, you need to make it! Most of the group will withstand hot spells if kept very wet, fertiliser eliminated for a week or two and with plenty of shade and air movement. There are even many reliable warmth-tolerant *Odontoglossum* Alliance lines these days that will pretty much take whatever you throw at them in the way of weather. If you stay with *Odontoglossum* and *Odontioda*, you will get flowering as often as once every 6-8 months and even with a lot of *Oncidium* blood, the resultant hybrids like *Wilsonara* will bloom reliably year after year. If you live in coastal New South Wales and Victoria and have yet to make the acquaintance of the 'Odonts', you are missing something that will satisfy your soul. I am a *Cymbidium* addict from way back but I cannot resist the beauty and flamboyance of Odonts either. Give me those two genera, throw in a few Cattleyas for total decadence and I will be happy for the rest of my days. ■

Andy Easton
New Horizon Orchids
Salinas, California, USA
Email: andy.easton@sbcglobal.net

Right:
Odontioda
Shelley Anne
'177'



Below:
Odontioda
(Shelly x
Patricia Hill)



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Address editorial to:
David P. Banks (Editor)
Australian Orchid Review
39 Carole Street, Seven Hills
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Orchid Pollination

by Phil Spence

Pollination is crucial to plants survival, and nature has devised a huge array of ways that this is carried out. A lot of research has been documented on many plants and their interaction with pollinators, yet very little has been published on induction of pollination by artificial means, especially on orchids.

Throughout my life I have experimented with all sorts of orchid species and hybrids and this includes creating my own hybrids. I first started with Cymbidiums in the early 1950s and I certainly was not as adventurous as I am today. Back then I found that Cymbidiums were a very narrow group of plants and the basic species and hybrids were hard for a novice to research and obtain compared with today. Today many other sections of orchids have been used and are creating some very interesting plants.

I am now looking at the flowers and the inflorescence of Cymbidiums and feel that there is a long way to go with the placement of flowers on an inflorescence. If the flowers get much bigger they will overlap and cover over each other. The ultimate would have the flowers all looking to the front with the blooms alternating so if an inflorescence is cut it could be laid flat without damaging a flower.

Several species produce multiple inflorescences and it is possible by matching these species to create a dominate gene say around 4+ spikes. What the flowers would look like should not matter at first. The same has been done to create erect inflorescence and there is many *Cymbidium* hybrids out there today that do this and do not need staking.

Papua New Guinea has several interesting *Cymbidium* species and they should be brought into culture. One species that comes to mind is their form of *Cymbidium lanciflorum* that has fabulous barring, almost spotting to the size of blotches that are dark magenta over laid on the white petals. The labellum also is white and has even better dark magenta barring much closer together, whilst the petals are green. The mind boggles to where this could go.

All that I will say is that the species are the key to solving these problems.

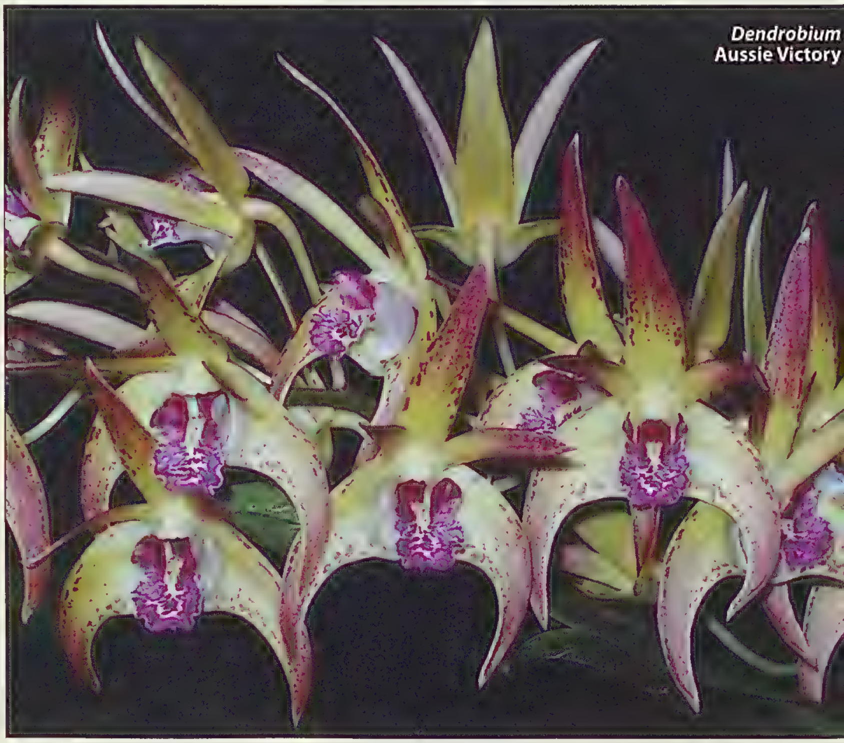
I then moved on and became very interested in Australian native orchids, especially *Dendrobium* and *Sarcochilus*. The work with these two groups of orchids was more challenging as there was only a small amount of hybrids out there and there were no guidelines or objectives.

At this time I was also breeding many kinds of birds, I found that it was relative easy to breed a good colour and shaped bird as the British had several good books on how to breed for colour, shape, size, etc and had a line drawing of the ultimate shape for Budgerigars and a very good judging standard etc.

All orchid judges and growers only have "the book" and a mental picture of the ultimate orchid, but there were no judging standards for our native orchids.

I used select species and line-bred them to produce better hybrids with their progeny. One of the first things was remaking *Dendrobium* Ellen (*kingianum* x *tetragonum*), this was very encouraging as they were twice the size as the original cross and the flowers were a dark magenta. Many of these early crosses should be remade and before removing the plantlets from tissue culture the chromosomes should be doubled, converting the plants to tetraploids (4n).

It is very pleasing to look back and see some of the many hybrids that have been raised from some of my earlier *Dendrobium* hybrids such as *D.* Aussie Victory and *D.* Aussie Angel but I also find it sad that no one has remade these using the superior parents that are available today, then converting them to tetraploids.



Dendrobium Aussie Victory

Money is the root of all evil, and it has been a hard road as I wonder what I would have done if it was not my problem and I was able to devote all my time to my passion of plant breeding. Yet, maybe it was meant to be that way, as I have been fortunate though in having an occupation that with my specialist skills involved travelling widely throughout Australasia. In many of these places, in my spare (non-working) time, I was able to enhance my knowledge of plants, mainly orchids.

One of the countries I have spent a large amount of time in is Papua New Guinea and over the many years I have fallen in love with countless numbers of orchid species. The many challenges that I have been able to think about, and to achieve using many of these species, I feel I have been able to send orchids in many new directions.

I should mention at this time some of the people that have encouraged me to take my passion to the extent that I have. G. Hermon Slade, was always there with good advice and sound thinking with many things including orchids and guiding me through my short fall, namely the embarrassment and pressure put on me with a spelling problem and putting pen to paper. Peter Featherstone a very dear friend also, but sad to say like Hermon, has passed away. His technical support with tissue culture and developing media for seed and cloning cultures was significant. This information on tissue culture media is readily available today, but in those early years it was impossible to get information and you had to conduct your own broad spectrum experiments to get good results.

Several additional people are worth a special mention as they helped me and encouraged me and also imparted with their knowledge. Goodale Moir (Hawaii) *Oncidium* intergeneric breeding knowledge, George Habel (Australian Cymbidium Orchid Co., Breeding and culture of Cymbidiums) and Graham Ralston (Softcane *Dendrobium* and *Oncidium* hybridiser).

But there are just as many who have made my life difficult and at times I felt like calling it quits and going back to the birds. I would like to name them but it is not the done thing. It is a shame they did not put their efforts into positive means to helping people instead of negativity. As my mother often said "jealousy is a curse". But this is not what this article is about and as you now understand me a little, I will get to the point.

I have made and attempted to make so many crosses, however the pollinations that I have been successful with and achieved has sort of controlled the direction that I have taken. I have become very set in my ways and ideals, and some of the techniques that I have developed or I have used have enabled me to be more in control. Let me explain. In the USA Bacto Laboratories does market an ointment similar to keiki paste called Hybridizers Ointment (I obtained mine from Sigma in Australia) most selfings or crosses developed a seed capsule but whether or not there is seed it is in the hands of the gods. So scrape the interior of the seed capsule into the flask you might get a few seedlings if you are lucky. This is today's methodology.

So let us look back over time and see some of my encounters with pollinations.

Of late I have been looking at what nature uses. Dr Geoff Stocker, a long time friend and I have for a very long time been wondering about the alpine species of *Dendrobium* Sections *Pedilonum* and *Oxyglossum* and the closely related Sections, in why the flowers of many species are mostly pollinated by birds. Like Geoff, I have observed a single bird gathering nectar from many flowers but only a few were the same species. It appears that the reward for the bird is the sweet syrup nectar from the flowers in these Sections. Some species in this *Pedilonum* Section of *Dendrobium* such as *D. pseudoglomeratum* produce so much nectar that it drips from the flowers for several days.

LATOURIA DENDROBIUMS

Phil Spence and Roy Tokunaga 2010

Published by the American Orchid Society as a supplement to Volume 79 of *Orchids – The Bulletin of the AOS.*

With over 40 years of extensive studies of *Dendrobium* section *Latouria*, Phil Spence shares his observations and experiences of both the species and hybrids.

Roy Tokunaga from Hawaii discusses general culture of these spectacular plants.

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Dendrobium pseudoglomeratum

A bird, as best that can be seen with binoculars, had many grains of pollen on its beak. The pollen is hard to see as it is the same colour as the bill, a waxy grey-brown. This was confirmed on one of my last trips to Papua New Guinea in the mountains, when students were using mist nets recording alpine birds on Mt Wilhelm at 3700 metres. The bird had several different size pollen parcels on the upper bill, obviously from several different species.

The question then arose why were there no natural hybrids? The answer Geoff and I believe is in the nectar. So Geoff and I independently conducted controlled tests and dipped the pollen of some species flowers that we knew were self pollinating, in nectar of that flower and the other flowers pollen were not bathed in the nectar before putting the pollen on the stigmatic surface. The results were very promising in that the flowers that had pollen dipped in the flowers nectar produced more and healthier seed pods with more viable seed, while only a poor number of pods were harvested from the pollen that was not covered in nectar. It appears there is something in this nectar that allows the pollen to be released from the bill of the bird but I will not speculate what at this time, but Geoff Stocker and I have our thoughts to what it might be.

I have made many seed pods over my life on a wide array of species and hybrids usually doing the pollinations late at night. While removing the pollen with whatever - a tooth pick, a small piece of fine plastic coated wire or tweezers. The procedure was like this. At the time I was doing this, I usual chewed sugary jubes or chocolate. I placed a small amount of saliva on the tooth pick, wire or tweezers to help the pollen to adhere to the thing I was using to stop the pollen dropping and losing such a small thing. Combining these two things I then started to run tests dipping the pollen in honey and later adding many different things to the honey such as vitamins, this certainly helped the more difficult pollinations to be achieved. The best results were with honey and Vitamin D. I used honey as it is natures best that has sugar and much more it does not spoil or go bad.

In an early publication *American Orchids* by Edward .A. White (Third Edition 1946 p.74-75.), he discloses a formula that he developed solutions based on Hoagland's Solutions and states that his best seed pods come from this. This formula was made up specifically for me by Horticultural Solutions, and I was fortunate to be able to further trial it, on top of the trials I conducted back in the late 1960s and the early 1970s, it also certainly helped. It is the only time in my life in all of the books on orchid culture that I have seen this sort of information, how switched on for that time.

The plants do not respond to this fertiliser until the plants flower from the growth that has been treated with this solution. I did use it about every fourth to sixth time I fertilised the plants.

Another trick I did use to achieve seed capsules was to place the pollen on a piece of blotting paper. Then with an eye dropper place a drop of Hexane (cigarette lighter fluid) on the pollen, if you do this you will notice the Hexane will quickly spread and evaporate off leaving a yellow colour on the blotting paper. This is the wax like coating that I believe contains the anti-auxins that helps the stigmatic surface detect and reject foreign pollen from other plants.

The stigmatic surface is the orchid flowers contact point to the ovary. It just looks like a little lake filled with a semi-clear thick to thin wax like solution. It does not look complicated yet it can dissolve pollen and transport or allow the minute grains to grow and extend through the fine tunnel or tube and fertilise the ovary.

I believe that many of the pollinators use this fluid and are often trapped in it accidentally. One of the most spectacular times I have observed this surface and its interaction with insects was, while working In Papua New Guinea at the National Capital Botanic Gardens, in their research centre. I was trying to identify an orchid species of a little known genus *Appendicula* that was unknown to me at that time. I had this plant under the microscope greatly enlarged to see closer details when a mosquito alighted just beside the stigmatic surface and lowered a revolting looking proboscis into the fluid and sucked it all in to its body leaving a dry cavity. My only regret is that I did not have the camera fitted to the microscope. Today when a mosquito bites me I shudder at the thought of this horrible thing entering my body and drinking my blood!

This mosquito did not part with any liquid yet when they draw blood from us they inject something that creates an itch or even worse things!

I have observed at one location several species all in flower at the same time. Yet the large flowering *Dendrobium* and *Bulbophyllum* species each with a specific wasp that only alights on that species then fornicates over the stigmatic surface. Again the same story with smaller flowers and smaller wasps, but I could not smell anything however something was driving these wasps wild with excitement, yet the wasps knew which particular flower to go to.

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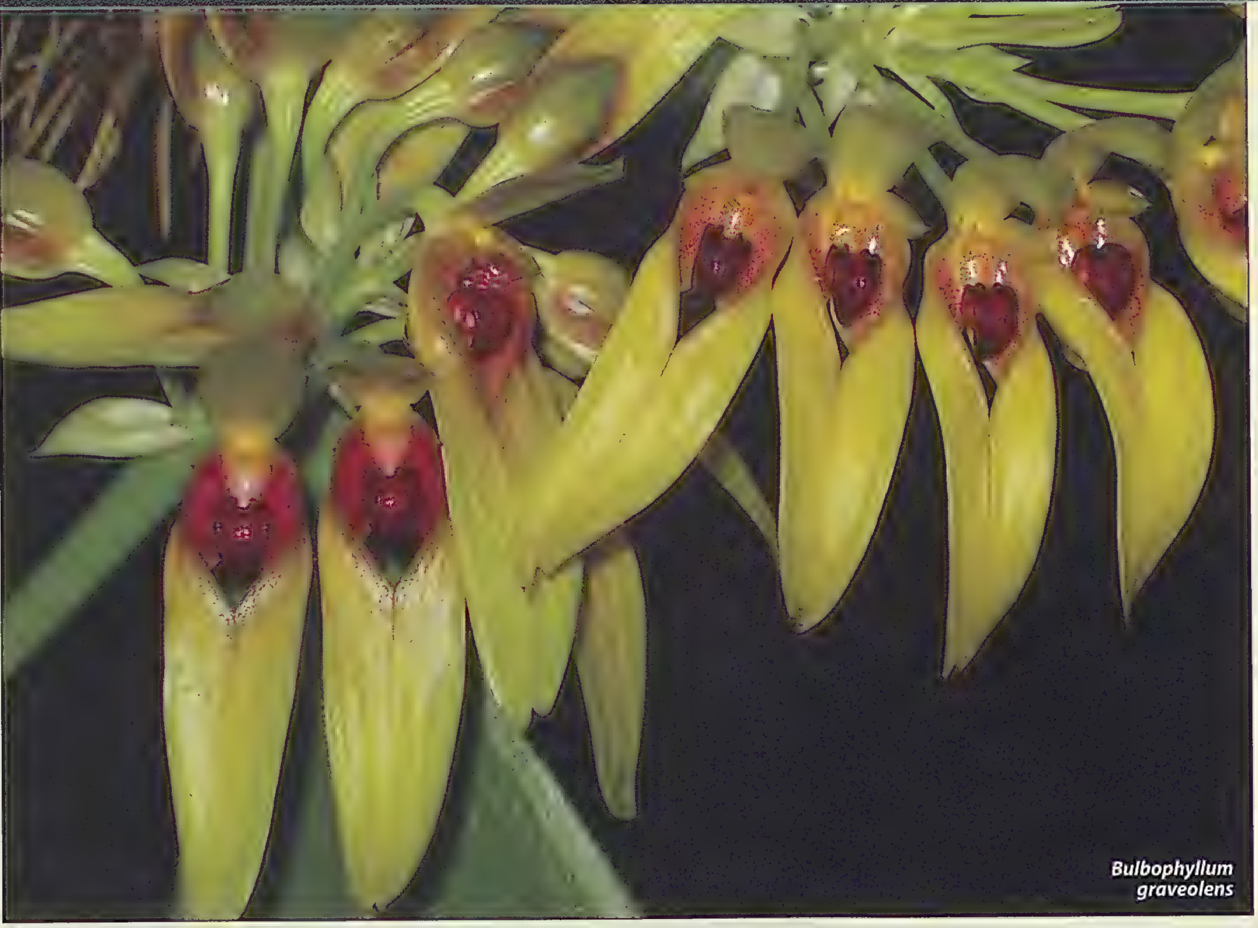
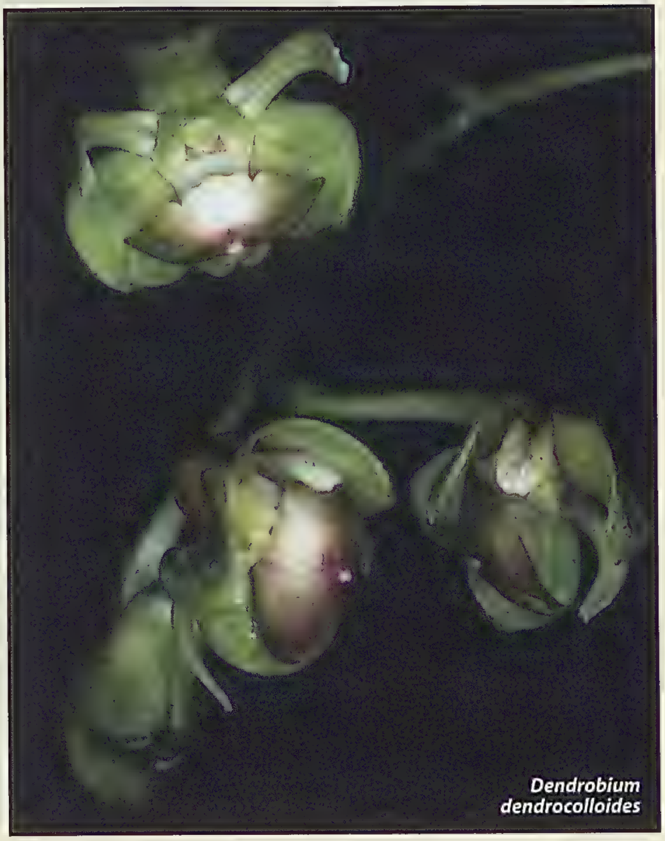


Bulbophyllum graveolens

The impressive and large growing *Bulbophyllum graveolens*, *B. fletcheranum*, *B. macrobulbon* and *B. phalaenopsis* all have a 'perfume' that is truly revolting. To give some idea how bad it smells, it attracts carrion flies, with the first two species for certain and possibly the other two. These flies, if they become trapped in the sticky surface of the stigmatic fluid, are covered in this sticky liquid which causes them to die, the displaced fluid will flow through and over the fly's body and get under the pollen cap, uniting with the pollen grains allowing to grow and in turn fertilise the ovary. With the above species the best seed pods (capsules) that I have had have been from this way. To attract the flies I put my plants in the sun, out of nowhere the flies appear and within a short time part of the fly gets trapped in their small - compared with the flies - stigmatic surface.

One of the people I have discussed this, and many other orchidaceous things along these lines, with is Neville Howcroft - while in Papua New Guinea a well known authority on PNG orchids. He informed me that with the terrestrial genus *Spathoglottis* if the plants are experiencing a drought natural or manmade, the column foot of the flower will curve, allowing the stigmatic fluid to be squeezed out of the hole it is in and in doing so flows under the pollen cap allowing a self pollination to start. After he shared this information and on returning to Australia, I put several plants of *Dendrobium* section *Latouria* through this torture and to my surprise one species did the same as the *Spathoglottis* and that was *Dendrobium dendrocolloides*, a seed pod developed that was subsequently flasked producing good germination.



Dendrobium dendrocolloides

Within the *Oncidium* alliance, including the intergeneric hybrids, once pollinated the small wing like extensions beside the stigmatic surface close over the stigmatic surface. This takes about 24 hours for this to happen, in doing so prevents any further access to this surface or fluid. There are many orchids that use this defence other than *Oncidium* and related genera.

Oncidiums are essentially very hard to self pollinate. As a general rule you cannot self pollinate a species with few exceptions to this rule. *Oncidium incurvum* is one that springs to mind. So to generate more of a species you must have two different clones of that species if you wish to grow from seed with some variability, or perpetuate a single individual using modern techniques of mericloning by tissue culture means. I have been successful with a few species in self pollinating themselves by removing the pollen and then 24 hours later just before the surface is covered and sealed, placing the pollen within the stigmatic cavity. The sealing of this surface is triggered by removing the pollen or pollen on the surface. Always worth a try for that tricky "one-off" species.

As a rule of thumb, and this goes for most orchids, the pollen weight that you remove from the plant that you want to carry the pod should be about the weight of the male pollen you are placing on the female plants stigmatic surface. You might have to cut the pollen up. Cut large pollen into small sized pieces or try combining many pieces of small pollen from several flowers to achieve this. Again, worth a try if previously you have been unsuccessful.

For example, when crossing *Sarcochilus* with *Phalaenopsis* to create *Sarconopsis*. *Sarcochilus* have small pollen and *Phalaenopsis* (in most species and hybrids) have quiet large pollen. I would use the *Phalaenopsis* pollen (male) putting it to the *Sarcochilus* (female) this means dividing the pollen into many pieces. *Phalaenopsis* have two balls of pollen; I would separate one of these balls from the other one and using a scalpel blade divide this piece into four pieces, and then use all of this pollen, one piece in one flower and the rest over three more flowers on the same inflorescence or other inflorescences. I also have found the big flower is better to use as the male and the smaller flower is better to carry the seed pod (female). This does not guarantee you will get a successful pollination but it certainly helps. Ideally try the combination both ways, and record and share your results.

These are many of my tips and findings from many years of research plus a lot of practical trial and error. I am very pleased to have produced some new and different hybrid combinations that at first I only could dream about, as well as propagating from seed many new, rare and previously unobtainable orchid species. The suggestions provided in this article might not necessarily work for you, but hopefully provides a basis for further serious research to be carried out now and into the future.

Phil Spence
Orchid Productions
Wamberal NSW 2260
Phone: 0408 994 696
Email: philspenceorchidpro@msn.com

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Phone: 0408 994 696 Fax: 02 4384 4304
AOR 024

Diuris perialla, A New Species from Western Australia with affinities to *Diuris brumalis*

by David L. Jones & Christopher J. French

Abstract

Diuris perialla from Western Australia, with affinities to *D. brumalis*, is described as new.

Key Words

Orchidaceae, *Diuris perialla*, new species, Donkey Orchid, Western Australia, Australian flora.

Introduction

Continuing studies in Western Australia into a complex of species surrounding *Diuris corymbosa* Lindley has revealed a number of new taxa. Five of these have been formally named (Jones 1991) and a distinctive early-flowering species with similarities to *D. brumalis* D.L.Jones is described here as new.

Materials and Methods

Descriptions of the new taxon were made from fresh specimens. Unless otherwise indicated, all types of *Diuris* relevant to this study (or photographs thereof), and collections cited, have been seen by us.

Taxonomy

Diuris perialla D.L.Jones and C.J.French, ***sp. nov.***, with affinity to *Diuris brumalis* D.L.Jones but differing by shorter habit, fewer flowers (up to four compared with up to 15 in *D. brumalis*), recurved lateral sepals (straight in *D. brumalis*), larger labellum with a broadly cuneate midlobe about as long as the lateral lobes (narrowly cuneate and shorter than the lateral lobes in *D. brumalis*), and a more northerly distribution.

Type: Western Australia. Yandin Hill Lookout, 5 July 1998, *C.J.French 1153* (holo CANB 639584; iso MEL, PERTH).

Description: *Leaves* basal, semi-erect to lax, conduplicate, two to three, linear to linear-lanceolate, 5-20 cm long, 3-7 mm wide, bright green; base sheathing; apex acute to acuminate, often recurved. *Scape* 15-35 cm tall, slender, green, one-four-flowered. Basal bract sometimes extended and leaf-like. *Pedicels* 15-45 mm long, slender. *Flowers* porrect, 25-40 mm long, 20-30 mm across, wholly yellow with reddish petal stalks and reddish tips on the labellum lobes, the exterior surface heavily stained with red-brown; lateral sepals reddish-brown with green tips. *Dorsal sepal* porrect in the proximal third then erect, 10-13 mm long; basal stalk 3-4 mm long, 3-4 mm wide, suddenly expanded into the lamina; lamina transversely ovate, 8-10 mm long, 9-12 mm wide; apex apiculate. *Lateral sepals* deflexed, crossed and recurved, narrowly oblong, 13-20 mm long, 3-3.5 mm wide, slightly falcate; margins involute; apex asymmetrically obtuse. *Petals* obliquely erect, divergent, tips sometimes recurved, 15-20 mm long; claw linear, 3-6 mm long, 1-1.5 mm wide, straight or curved, reddish-brown; lamina elliptic, 12-14 mm long, 8-10 mm wide; apex subacute. *Labellum* 6-9 mm long, porrect with a decurved apex, deeply 3-lobed; lateral lobes spreading widely, tips recurved, asymmetrically oblong-ovate, 8-10 mm long, 4-6 mm wide, straight; mid-lobe broadly cuneate, 6-8 mm long, 8-9 mm wide, narrow at the base then widely flared; anterior margins entire; apex entire or slightly emarginate. *Labellum callus* consisting of a single yellow ridge 4-5 mm long, smooth. *Column* porrect from the end of the ovary, 4.5-5 mm long, c. 3 mm wide. *Column wings* lanceolate, c. 5 mm long, c. 2 mm wide, cream to yellowish with irregular margins. *Anther* narrowly ovate, c. 4.5 mm long, c. 2.3 mm wide, cream with purple-brown markings. *Pollinarium* c. 4 mm long, c. 2.5 mm wide; *viscidium* elliptic, c. 1 mm long; *pollinia* clavate, c. 3.5 mm long, white, mealy. *Stigma* cordate to quadrate, c. 3.5 mm long, c. 2.5 mm wide. *Capsules* not seen.

Distribution and Ecology: Widespread in an area more or less bounded by Regans Ford and Mogumber north to Northampton and Mingew. Grows on laterite breakaways in dense low shrubby heath. Also in lateritic heathland composed of dense low shrubs with scattered stunted mallee. In the southern parts of its range it also occasionally grows in open white gum woodland over laterite. The soil in most parts is shallow sand over laterite. Flowers freely in the absence of fire. Flowering mid June to late July.

Recognition: Characterised by very early flowering habit, northerly distribution, moderately large yellow flowers with red to reddish tips on the labellum lobes, recurved and crossed lateral sepals and labellum lobes all of similar length.

Similar species: *Diuris perialla* shares some features with *D. brumalis* D.L.Jones. Both flower early in the season (starting in mid-winter), but the new species is shorter (to 35cm tall) with only one to four pale-coloured flowers, recurved lateral sepals and a larger labellum in which the broadly cuneate mid-lobe is of similar length to the lateral lobes. By contrast *D. brumalis* is taller (to 50cm tall) with up to 15 brightly coloured flowers, straight lateral sepals, and a smaller labellum in which the narrowly cuneate mid-lobe is shorter than the lateral lobes.

Notes: This Donkey Orchid is the first member of the *D. corymbosa* complex to flower in the north of the state. It begins earlier than *D. brumalis*, although the flowering periods may overlap.

Conservation status: Widespread but uncommon. Poorly conserved.

Etymology: The Greek *periallos*, before all others, in reference to its early flowering period.

Selected specimens: Alanooka Springs Road, 500m east of Burma Road, 2 July 2012, *G. Brockman 2848* (PERTH).

Acknowledgements

Chris French thanks Garry Brockman, Nye Evans and the late Bill Jackson for companionship on field trips. All of the original photographs accompanying this article were taken by Chris French.

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David L. Jones
Kalaru, NSW, 2550
Email: dabajones@bigpond.com

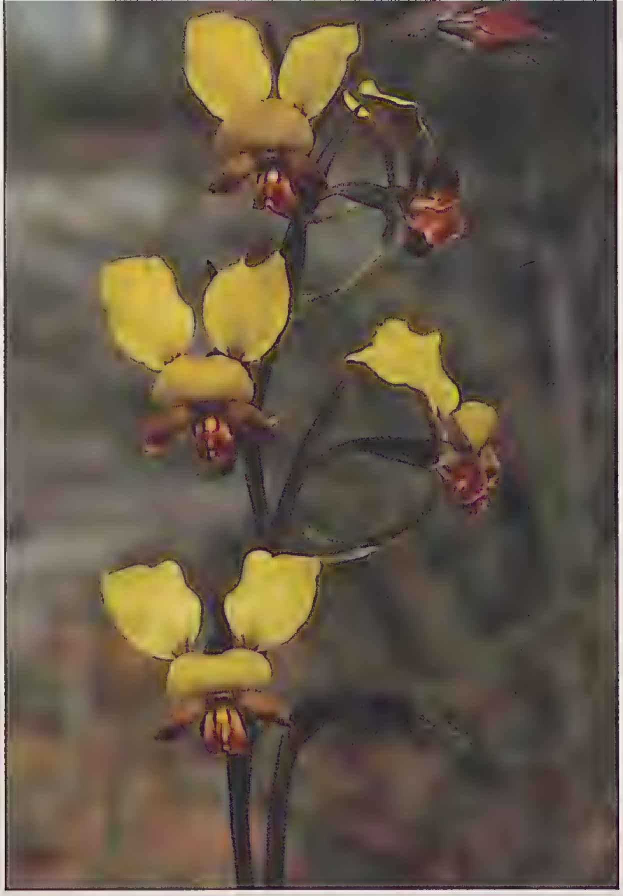
Christopher J. French
Bateman, WA,
Email: 6150 mail4cjfrench@gmail.com

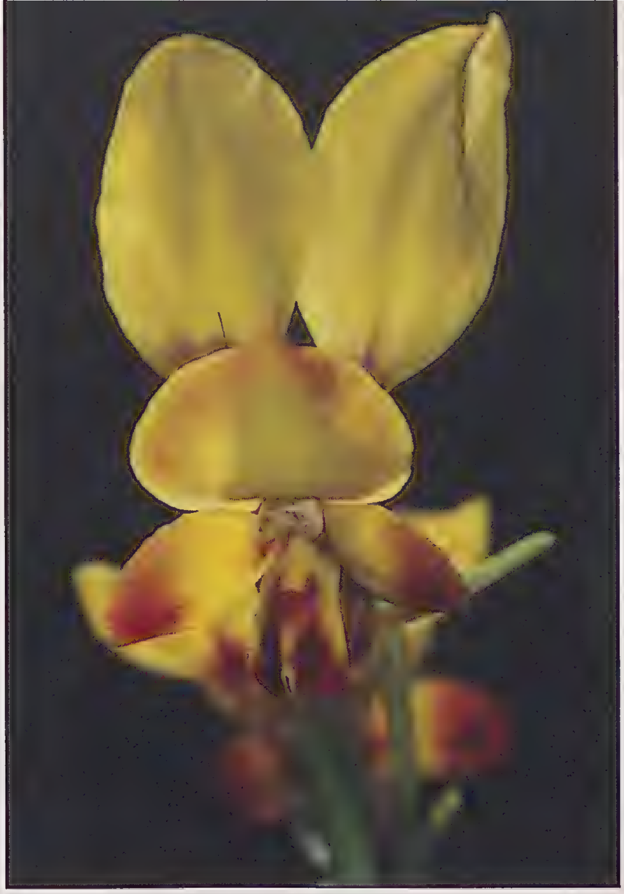
Above left: ***Diuris perialla*** Mingenew 2 July 2012

Above right: ***Diuris perialla*** Mingenew 2 July 2012

Below left: ***Diuris perialla*** Mingenew 2 July 2012

Below right: ***Diuris perialla*** Mingenew 2 July 2012



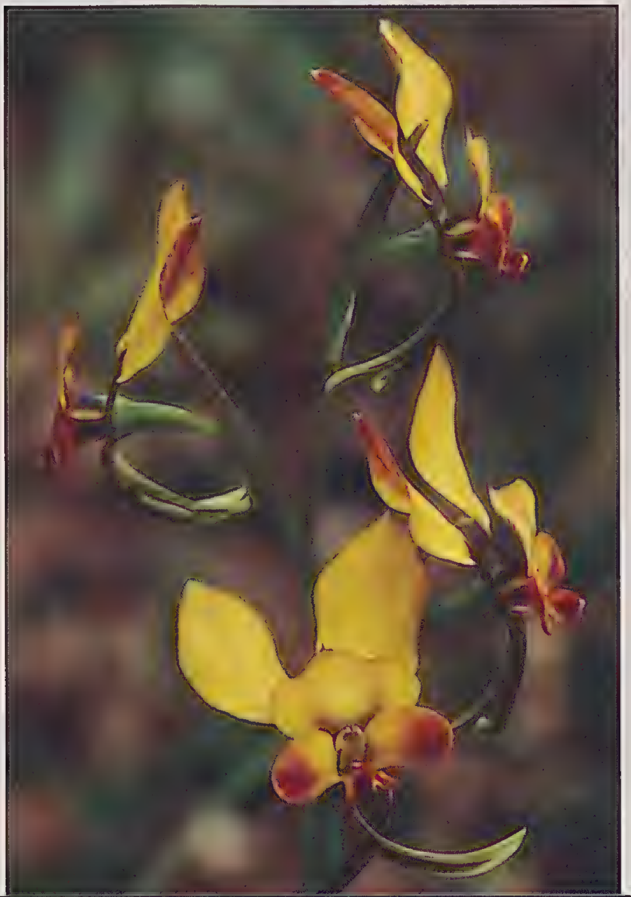


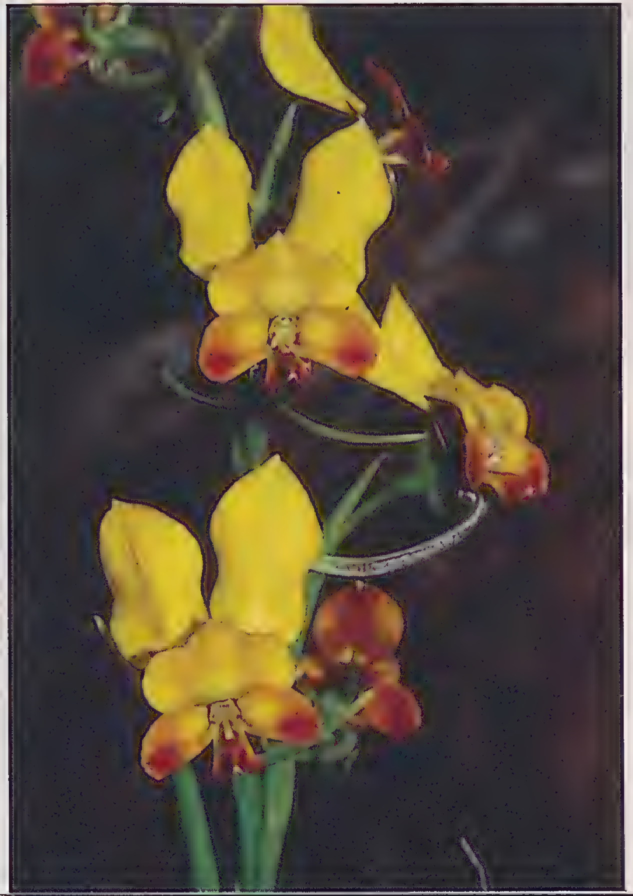
Above left: ***Diuris brumalis*** Roleystone 22 August 2010

Above right: ***Diuris brumalis*** Roleystone 22 August 2010

Below left: ***Diuris brumalis*** Roleystone 22 July 2012

Below right: ***Diuris brumalis*** Roleystone 22 July 2012





Burke's Backyard *Cymbidium for 2012*

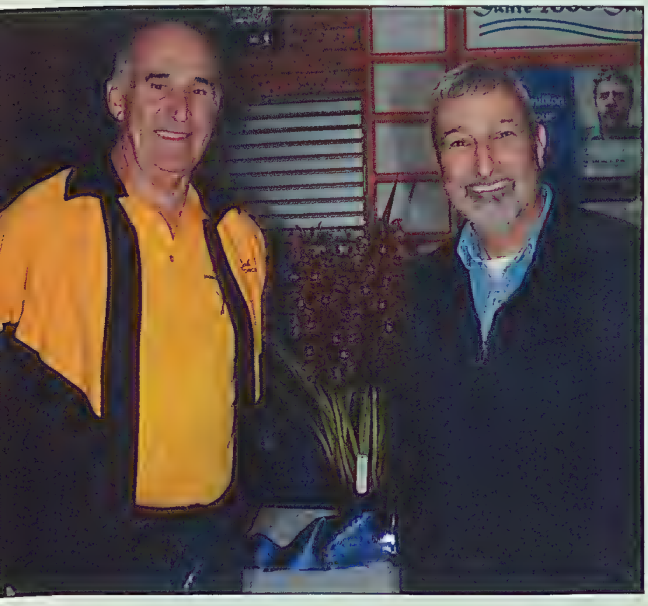
Text and photos by Terry Davis

Don and Marea Burke have been involved with the awarding of the "Burke's Backyard Cymbidium of the Year" since 2010 at the National Orchid Extravaganza held at Dural NSW. This is the main annual *Cymbidium* show presented by the Cymbidium Club of Australia (NSW). Their involvement was initiated by the Banks family, and their strong support with the charity Retina Australia, for which Don Burke is the NSW Patron.

The winning plant for 2012 was *Cymbidium* Nutty 'Tom Tom', an unusual coloured intermediate style hybrid grown by Rob Wells of the mid-north coast of New South Wales. This is the second time one of Rob's plant has triumphed with this sought-after award, with Scott Barrie of Barrita Orchids being the first recipient in 2010.

We thank Don and Marea for their support and promotion of our annual orchid extravaganza, and congratulate Rob on his wonderful *Cymbidium*. ■

Terry Davis
CCA (NSW)



Above: Rob Wells & Don Burke with Rob's winning plant

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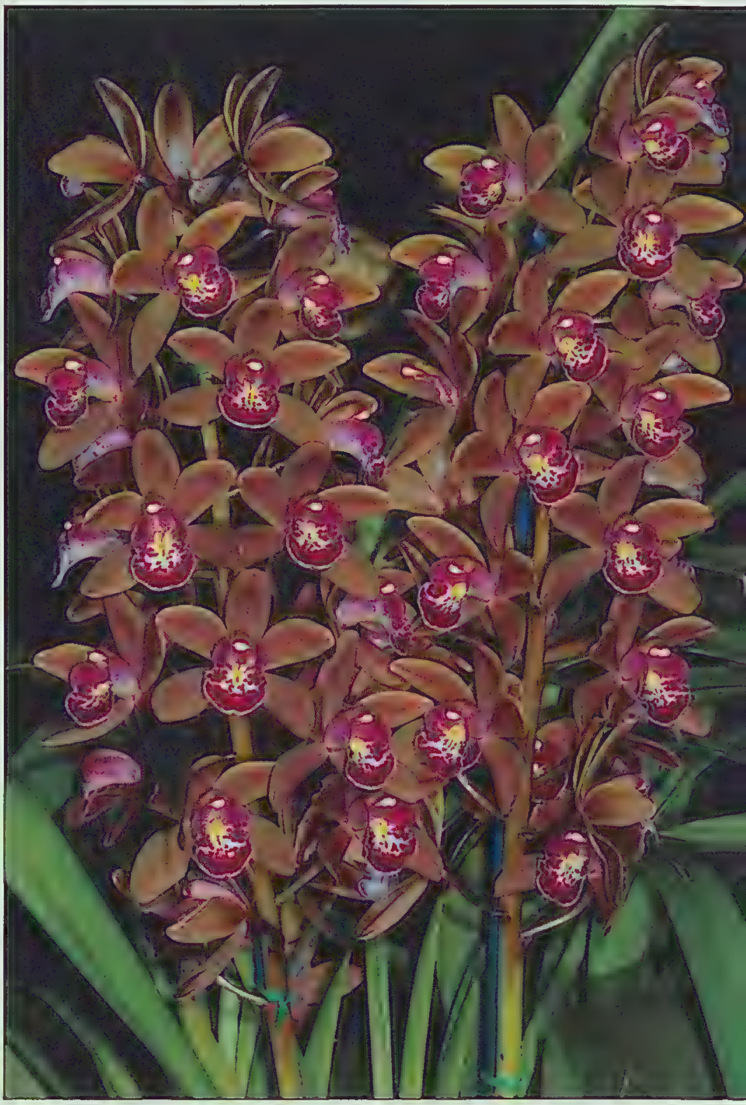


Right:
Cymbidium
Nutty 'Tom Tom'
grown by
Rob Wells.
Burke's Backyard
Cymbidium
for 2012

Walter Thomas Upton
(1922-2012)

All Australian orchid growers will mourn the passing of Wally on Friday morning, 10th August 2012 in his ninetieth year. Walter Thomas Upton was born in Kent, Great Britain on the 18th January 1922 and first became interested in English native orchids at the age of nine.

He served in WWII in the Royal Air Force as navigator in Lancaster bombers. He was shot down on his first trip after his marriage to Jill and was posted 'missing in action' for some nine months. He survived Gestapo incarceration and later concentration camp internment. Wal was later awarded the Distinguished Flying Medal (DFM) as a pilot with the Royal Air Force during World War II.

After the war he and Jill migrated to Australia where they resided in North Narrabeen and later Elanora Heights. The surrounding bush land re-awakened his enthusiasm for orchids and he soon began identifying the abundant Australian native orchids locally.

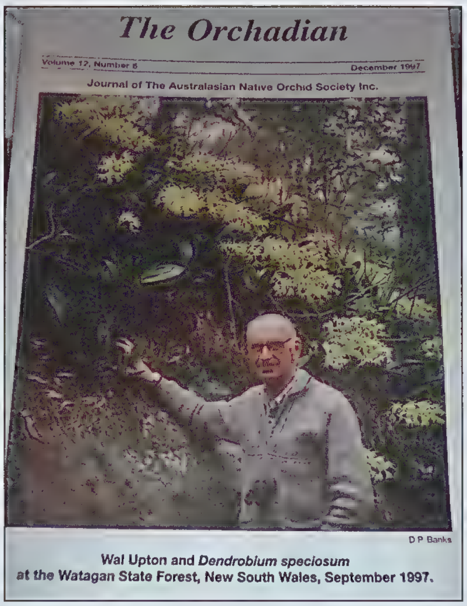
He became a member of The Orchid Society of New South Wales and Manly Orchid Society, which later became (after his suggestion), Manly-Warringah Orchid Society. He also joined North Shore Orchid Society Inc.

He was an accomplished artist in oils & charcoal. As his interest in Australia native orchids progressed he began developing his botanical art skills and drew in minute dissected detail, to scale, every native orchid he found. These drawings appeared in orchid journals worldwide. Wal completed over 500 botanical drawings of orchids. Most now reside in the Mitchell Wing of the NSW Public Library.

He published three main books on orchids; *Growing Orchids*, *Dendrobium Orchids of Australia* and *Sarcochilus Orchids of Australia* (*Understanding Orchids* was published privately and is now a collector's item) plus many hundreds of papers published worldwide. Wal corresponded with many leading orchid scientists throughout the world. He lectured on orchids overseas in Great Britain, U.S.A., New Zealand, South Africa and Canada.

He was honoured by the local residents when he revisited the French town some few years ago, where had parachuted on fire during the war. That was moments before his Lancaster and crew crashed nearby. Later, the single large bomb they carried exploded! He was the sole survivor!

Wally was the real founder and driving force in the creation of the Australasian Native Orchid Society (ANOS) in 1962 and its elected founder Hon. Secretary, at its foundation meeting on 6th July 1963, before 90 members.



The Orchadian

Volume 12, Number 6 December 1997

Journal of The Australasian Native Orchid Society Inc.

D P Banks

Wal Upton and *Dendrobium speciosum*
at the Watagan State Forest, New South Wales, September 1997.

Above: Wal Upton photographed in 1997 amongst *Dendrobium speciosum* in the bush. Wal was the founder of ANOS, which produces the periodical *The Orchadian*

He was a founder member and later a Life Member in 1982 of ANOS (as well as two terms as Editor of *The Orchadian*) as well as being Patron. Wal was also a founder member & Life Member of ANOS Warringah Group, founder member of ANOS Sydney Group, a member of North Shore Orchid Society Inc. - Member, Judge and President of The Orchid Society of NSW. Chairman Symposium Committee of the Orchid Society of NSW 'Orchid Symposium' as a satellite function of the 13th International Botanical Congress at the University of Sydney, 1981.

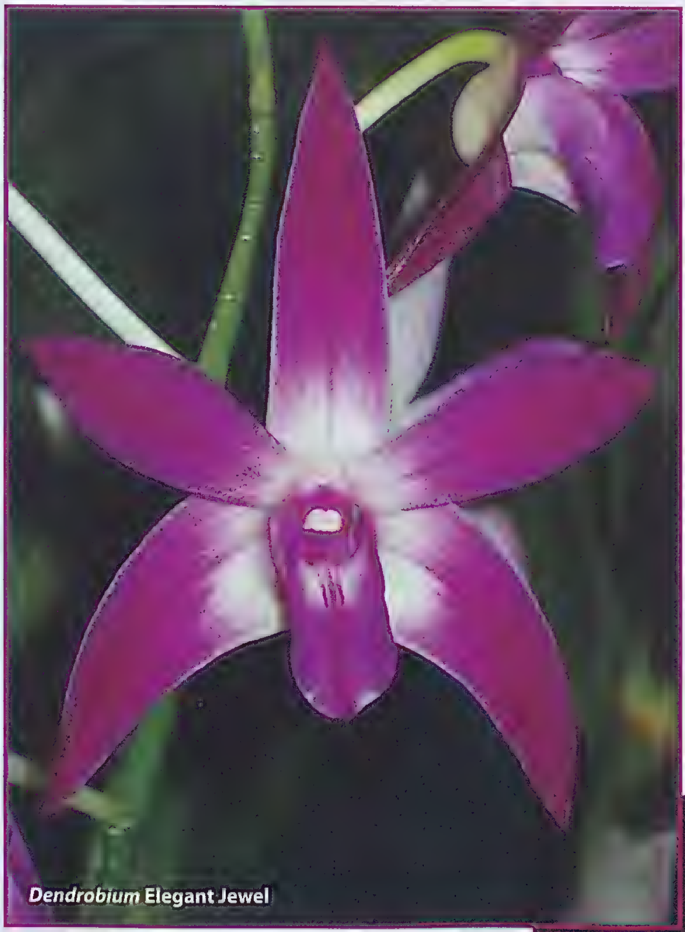
Wally and Jill founded 'Double U Orchids' at Elanora Heights and hybridised, flasked, and cultivated many native Australian and exotic orchids. Some of his innovative and insightful hybrids included *Dendrobium* Elegant Heart (plus others in the "Elegant" series), *D.* Pink Ballerina, *D.* Red Ballerina and *Porterara* Blue Boy. He made many intersectional hybrids within *Dendrobium* and many intergeneric combinations, often incorporating *Sarcochilus*. He named hybrids after all family members and his whimsical choice of hybrid names was legendary. For example *Dendrobium* Duke after the family dog and *Dendrobium* Silvester was named after their cat! When he asked a friend what he should name an orchid flower under examination, she responded 'Golligosh, I don't know'. Wally responded, that's it... Golligosh! So *Dendrobium* Golligosh it became! In all, he registered over 165 orchid hybrids.

Wal was awarded the Australian Orchid Council "Award of Honour" in 1989, and later the "Award of Honour" from the Australian Orchid Foundation, 1998.

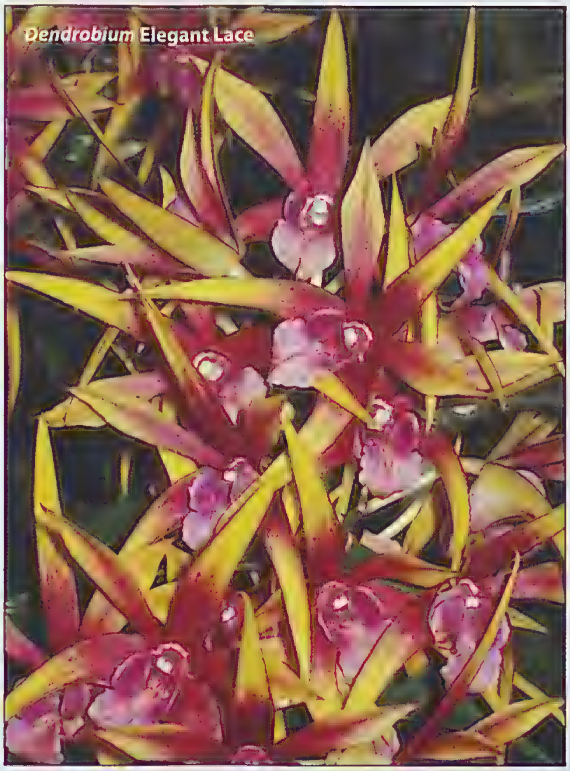
Later Wally and Jill moved with their nursery & collection to Kariong on the NSW central coast. Later they retired to Bonnells Bay. In 2007, Wal was presented with an Order of Australia Medal (OAM) for "service to the conservation, cultivation and recognition of native Australian orchids".

Walter Thomas Upton DFM OAM was held in great respect and high esteem by all within the Australian and International orchid fraternity. Vale dear friend to so many, a full, honourable life, devoted to country, family, belief, and an orchid obsession! Here we share some of his favourite orchids that he bred. ■

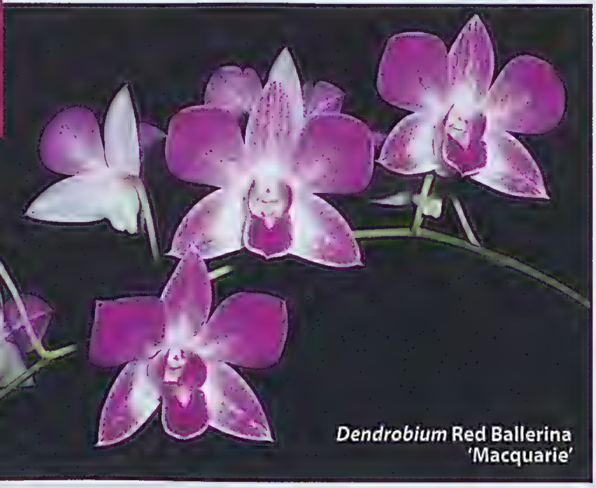
Murray Corrigan
Elanora Heights, NSW
Email: mjcorrigan@internode.on.net



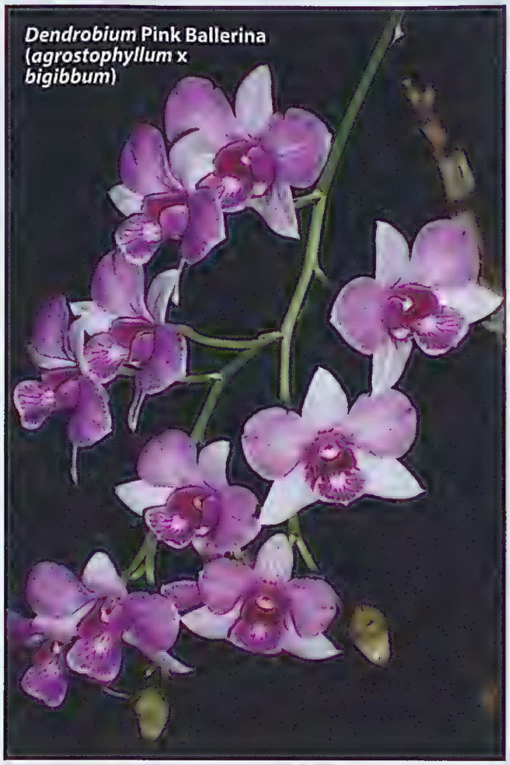
Dendrobium Elegant Jewel



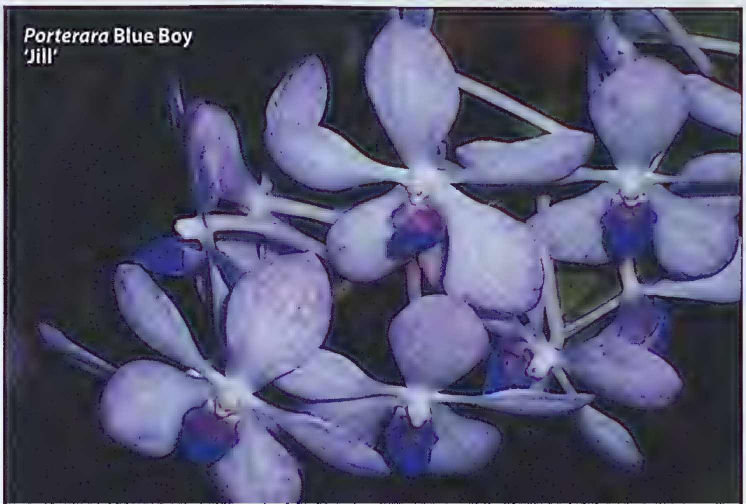
Dendrobium Elegant Lace



Dendrobium Red Ballerina 'Macquarie'



Dendrobium Pink Ballerina (*agrostophyllum* x *bigibbum*)



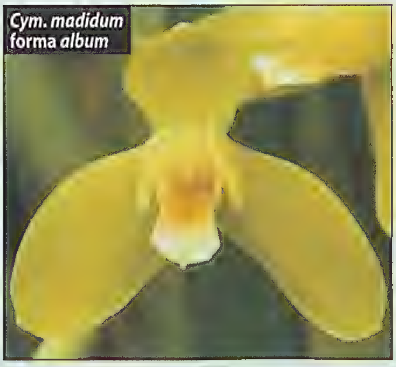
Porterara Blue Boy 'Jill'

More on albinism in *Cymbidium madidum*

by Randall Robinson

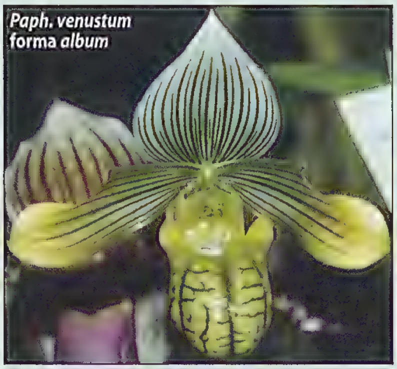
Good to see both Australian Native Cymbidium articles in the August – September 2012 issue of the *AOR*.

Just a little clarification on the comments David Banks raised in his discussion under the albino form of *Cymbidium madidum*. Orange, at least in the case of Cliff Hutching's *Cymbidium madidum*, and more generally in plants, is not a combination of yellow and red. Anthocyanins are water-soluble. Carotene is fat soluble. They are very different molecules.

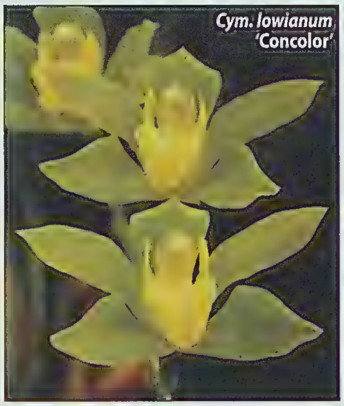

Cym. madidum forma album

I have, from a horticultural perspective, always taken *'alba'* to mean a plant lacking anthocyanin. Of course, the technical meaning is much different. Our work here in my group is mainly on colour pigments in birds but the same colour classification issues exist between the 'birders' and 'twitchers' and the ornithologists. Bird colour classifications due to presence/absence of pigment are a nightmare.

I have no difficulty classifying Cliff's plant and even the two in the USA as 'albas' should they prove to contain no anthocyanin. There are plenty of examples of forms of plants that are loosely classified as *'alba'* due to lack of anthocyanin. When I get a chance, I would like to test the *'alba'* form of *Paphiopedilum venustum* and some of the other *'alba'* slipper orchids. From my experience, some of these blush orange as they age.


Paph. venustum forma album

It would be interesting however, to test more traditional *'alba'* Cymbidiums to see if they have carotene. *Cymbidium lowianum* 'Concolor' certainly does. I personally have very few *'alba'* cymbids but should be able to procure them easily enough. I guess the other line that would need checking is the *Cymbidium* Golden Elf hybrids. Some of those have the orange spotting on the labellum, but are still generally considered 'Alba'. I think there is probably a much more complex story going on here.

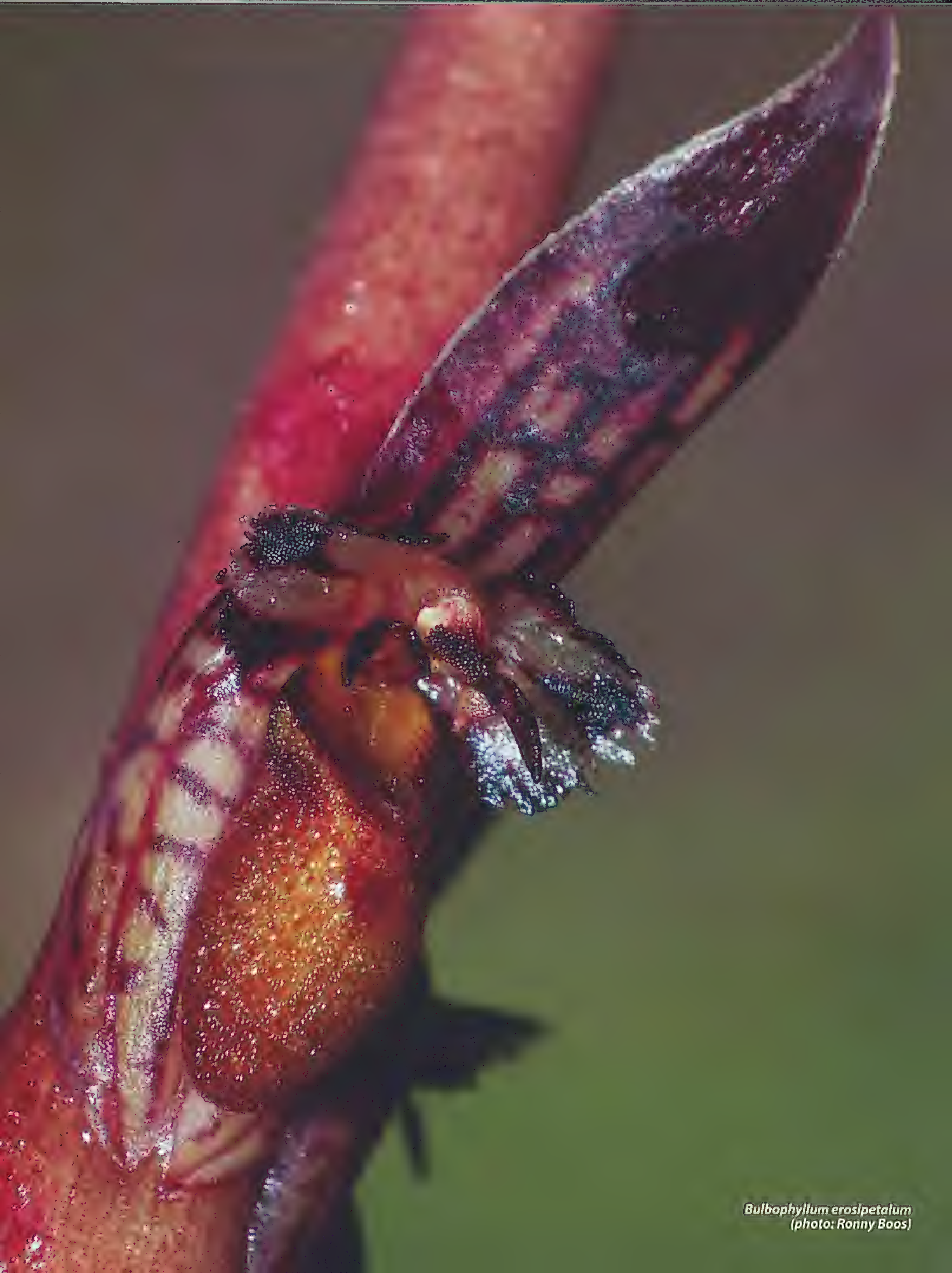

Cym. lowianum 'Concolor'

Apart from the *Cymbidium lowianum* 'Concolor' and Cliff Hutching's *Cymbidium madidum*, I have not looked at any of the others, so anything I say in relation to other yellow types is pure speculation. I would imagine the calli may contain carotene even if the rest of the flower, or labellum does not. I don't think this would be universal. I would imagine (again speculation) that there is probably a specialised pathway that allows or disallows development of pigments and that this may express differently for the sepals/petals and the labellum. Think 'semi-alba' *Cattleya* (white petals and sepals, but with a pink to purple labellum).

I don't really want to ignite a discussion on colour classifications in the broader orchid world, but I do agree that from a practical point of view it would be good to at least have some standardisation in the categories. People have variously used *flava/flavum*, *xanthic* and *aurea/aureum* for the yellow flowers that do not contain anthocyanin. The greens, or ones that contain chlorophyll would technically not be albino either as they still have colour pigments in the cells. What would we call these? This leads us on to the '*alba/album*' and albino forms. Absolutely true albino 'flowers' are very rare as even with plants like *Cymbidium dayanum* forma *album* there is a bit of yellow dusting on the labellum. Ultimately, unless we can have a quick, easy, inexpensive chromatography test we will not know what pigments are in the flower. It is actually hard enough with the existing tests. Plants also don't behave very well and have mixtures of pigments.

Maybe I could co-supervise an interested student to work with our chemists to analyse and classify a series of flowers? Maybe a commercial nursery or business or a body such as the Australian Orchid Foundation may be interested in funding the testing? We can pay for the student, machines and lab time.

Dr. Randall W. Robinson
Senior Lecturer (Ecology and Environmental Management)
Team Leader - Applied Ecology Research Group
School of Engineering and Science
Victoria University
P.O. Box 14428
Melbourne City MC 8001
Australia
Email: Randall.robinson@vu.edu.au



Bulbophyllum erosipetalum
(photo: Ronny Boos)

Bulbophyllum erosipetalum

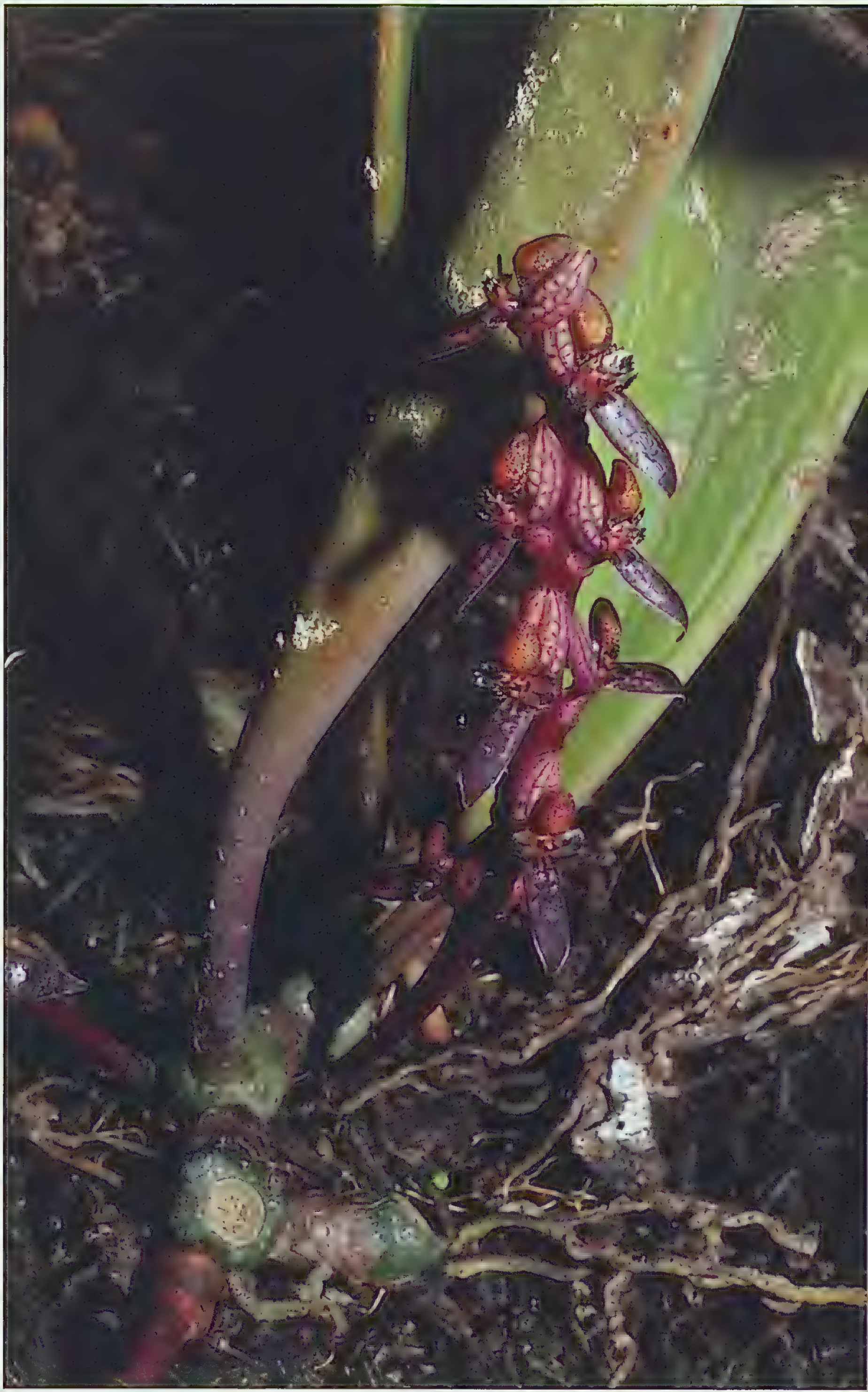
by Jim Cootes

There are times when I am sitting in front of my computer, looking at out-of-focus pictures, that I wonder why I ever made the offer, in my two books, to identify Philippine orchid species. Frequently I am sent pictures of a species that is very common, and with a little effort on the sender's behalf, this species could be easily identified. Then, occasionally, a real orchid gem is sent to me, which will make all the others worthwhile. *Bulbophyllum erosipetalum* is such a species.

Bulbophyllum erosipetalum was first described by Charles Schweinfurth, in the *Philippine Orchid Review* in 1951. The specific epithet refers to the erose (appearing as if chewed) apices and edges of the petals. It is a member of the section *Brachystachyae*, named by Bentham and J.D. Hooker in 1838. *Bulbophyllum atrorubens* Schltr., (recently found in the Philippines), *B. cuneatum* Ames, *B. doryphoroide* Ames, *B. pseudoconiferum* W. Suarez and Cootes, *B. saurocephalum* Rchb.*f.*, and *B. saurocephalum* subsp. *oncoglossum* Suarez are some of the Philippine members of this Section.

When the description of this species was made, it was accompanied by an excellent line drawing, which would make future identification of this remarkable species easy for the person(s) concerned, and so it proved. The plant that was used to make the original description came from the southern province of Cotabato, on the island of Mindanao, which is the second largest island in the Philippine archipelago. I do not know how many other plants of *Bulbophyllum erosipetalum* (if any) were collected at the time, but I don't think the plant ever became established in cultivation.

During my many trips to the Philippines, over almost four decades, I have never once seen this remarkable species, in any of the collections which I have had the pleasure to visit.



Above: *Bulbophyllum erosipetalum* from Samar, Philippines

Recently, a good friend, Ronny Boos, who lives on the eastern Visayan island of Leyte, contacted me about a plant that had just started to open its flowers. When the first images were sent to me, I was stunned by the weird, and wonderful, blooms that were before me. In all my years of studying the genus *Bulbophyllum* I have never seen such flowers previously.

The blooms are not big, at 10mm long by 4 mm in width, and they are non-resupinate (labellum uppermost). The inflorescence can be upright, to almost horizontal, is swollen and red in colour, and is between 6 and 7 cm in length. Several inflorescences can appear from the small pseudobulbs and they can carry up to 14 blooms, which have a mushroom-like odour. The base colour of the floral segments is cream, with vertical stripes of deep red. The labellum is dull orange, with some red blotches, and the surface is covered with small bubble-like protuberances. The anther cap is also an extraordinary piece of creativity with bristle-like extensions. The edges of the apex of the column have a trio of stelidia, with the upper pair resembling claws; this is Mother Nature at her brilliant best. The only purpose of these adornments is for one reason only: to guide the pollinator to its reward, whether real or imaginary. And hopefully, the pollinator will pick up the pollinia on its exit from the flower, and be able to pollinate another flower, of the same species, in due course.

The plant discussed here was found on an illegally felled tree, at an elevation of about 400 metres on the eastern side of the island of Samar. For its orchid companions it had plants of *Phreatia plantaginifolia*, *Oberonia leytensis*, *Bulbophyllum profusum*, and several *Pinalia* (syn. *Eria*) species.

Another quite remarkable feature of *Bulbophyllum erosipetalum* is that once the inflorescence was noticed it grew to its full length in three days, with all the flowers opening simultaneously overnight. They have remained in good condition for almost a week.

It is quite possible that the images accompanying this article are the first taken of a living plant of this species and the first published.

Acknowledgement:

My sincere thanks to Ronny Boos for the images, and habitat information, used in this article. Ronny is a constant source of new and interesting orchid species, which he finds in his travels around the Visayan region of the Philippines.

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My Five Favourite Orchid Species

Text and Photos by Jim Brydie

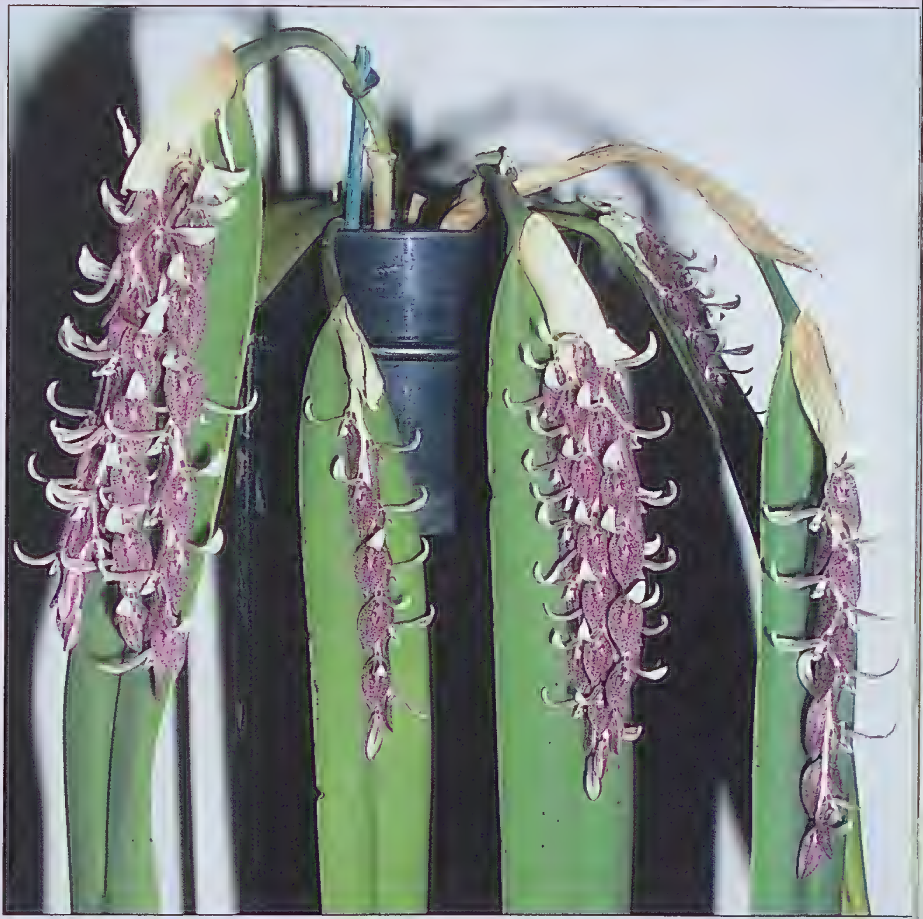
When David Banks first asked me to write this, I was at a loss to think just which orchids were my favourites. I grow a very wide mix of both hybrids and species, and I love them all. The hybrids generally have larger flowers, and a wider and more exotic colour range, but the species encompass a fantastic diversity of form, and that is one of the things that drew me to orchids in the first place. In no other plant family has evolution created such an amazing array. Orchids have evolved to fill thousands of niche habitats and in many cases have developed almost ridiculous relations with a single species of insect as a pollinator. I know it is just evolutionary forces at work, but sometimes I can't help thinking that their pollination strategies must be the result of intelligent planning by the orchid. How could one not be captivated by them?

So, after all that, which are my favourites? Well I did finally settle on five, even if the reason was a sentimental one in some cases. My selections are in no particular order.

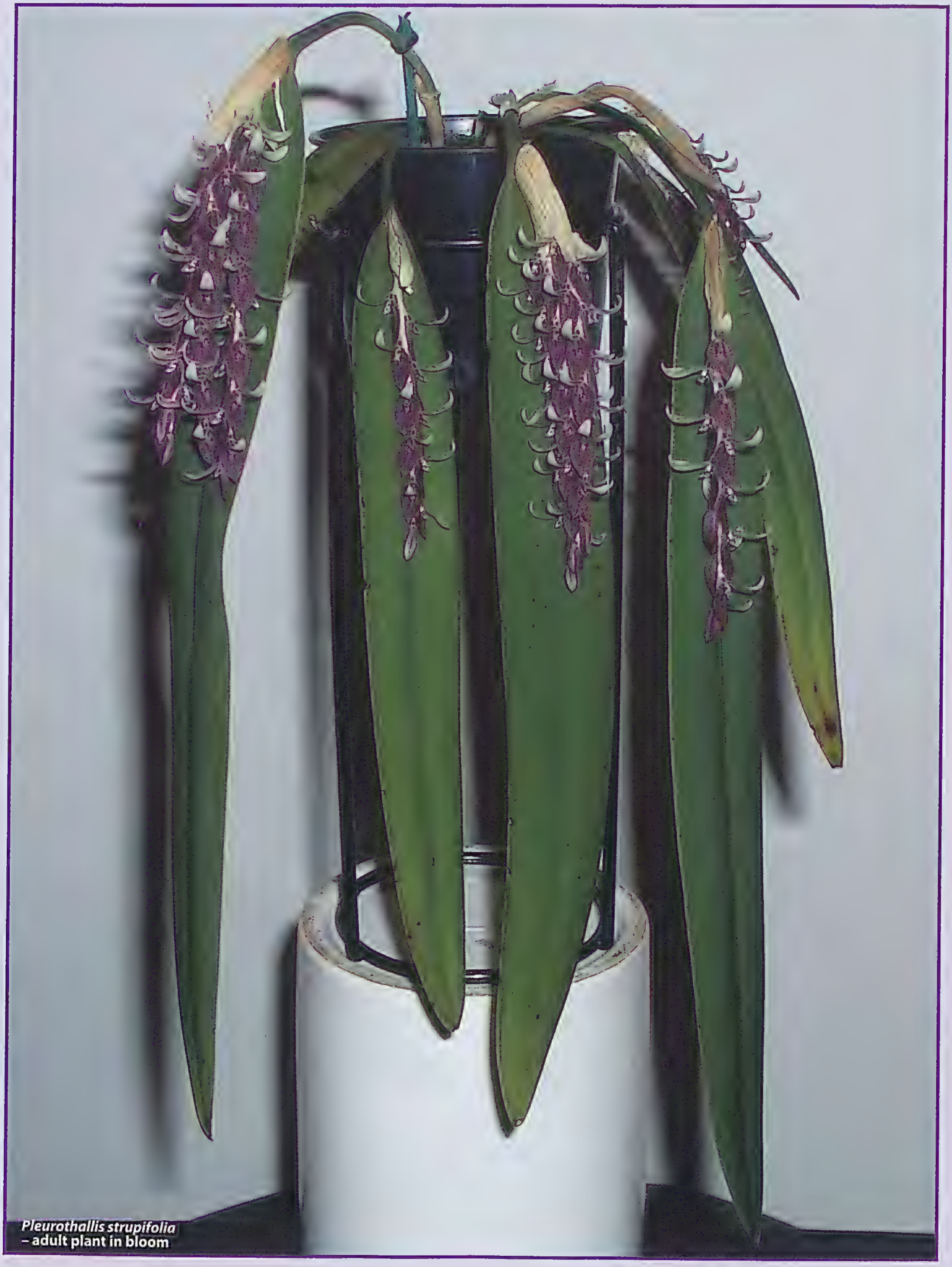
Pleurothallis strupifolia

I had been growing orchids for quite a few years before I even heard of *Pleurothallis*, and my introduction was a talk by Dave Banks at a Ku-Ring-Gai Orchid Society meeting many years ago. He had recently returned from a trip to the USA, and showed us pictures of some stunning plants from choice collections over there, including some *Pleurothallis*. I remember sitting in the dark as the slide-show went on, trying to write down the names of some of them on a scrap of paper. *Pleurothallis strupifolia* wasn't one of them by the way, but I did take an interest in *Pleurothallis* after that and over time acquired quite a few different species in a range of colours and styles. They will never challenge Cattleyas on the show bench but 'Pleuros' do have a unique charm of their own. Most are cool growers (yet many can also take some summer heat), and they are different to most orchids in that they will flower for many years from the same leaf, where the base of the leaf joins its stem.

Pleurothallis strupifolia is a Brazilian species. It comes from the coastal mountains in the states of Rio De Janeiro, Sao Paulo, Parana, and Santa Catarina, and apparently grows as an epiphyte among mosses and lichens. When I bought my plant, I did so purely on 'spec' and had no idea what it looked like. It was brought into the country about eight years ago, by Roberto Agnes of Aranda Orchids in Brazil, who I think had come to Sydney as a guest of Royale Orchids, and who did several talks at local societies while he was here. Roberto's main interest seemed to be the beautiful *Laelia purpurata*, and he brought a lot of his line bred varieties to sell while he was here, but he also brought seedlings of a number of other Brazilian species, including *Pleurothallis strupifolia*. I bought one each of 3 or 4 different types without knowing what any of them were, reasoning that if they were of no interest to growers, he wouldn't have brought them all this way!



Pleurothallis strupifolia

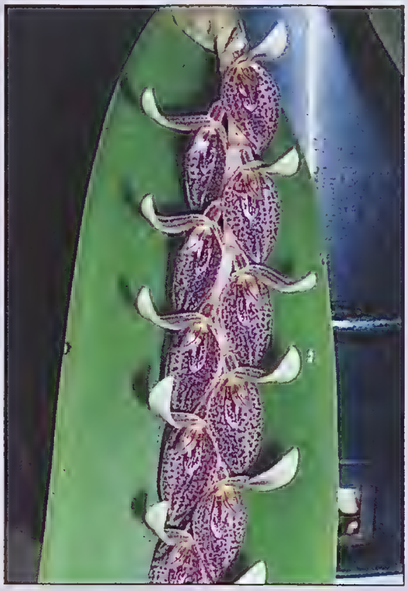


Pleurothallis strupifolia
– adult plant in bloom

Pleurothallis strupifolia has a 8cm long stem (botanically called a ramicaul) with a quite stiff, long and narrow, drooping leaf at the top. My little seedlings grew on nicely for a couple of years, and eventually each one flowered. The others were quite nice, but when *strupifolia* finally flowered, I was completely captivated by it. As you can see in the picture, it has about a dozen 10mm+ flowers that are arranged closely together in two rows so that they look like a jewellery chain. The background colour is cream, but they are so heavily spotted that they appear purple. Every time it flowers for me I am just totally blown away by its beauty.

Culture: I don't have any information on the altitude at which it grows, but these days I keep mine in the warm glasshouse. One winter I grew it in my roofed shadehouse, down to 0°C, and although it survived ok, some of the leaves spotted up, so I assume that it wants just a little more warmth.

In the McQueen's book ***Orchids of Brazil***, they say that their plant grows best mounted, but I grow mine in a squat plastic pot, in peat and perlite. I hang it close to the glass under 70% shadecloth where it gets relatively good light and better drying. It is obviously an adaptable grower, but the flower spikes on my plant are longer, and have more flowers, than the McQueen's describe for theirs, so perhaps the peat and perlite just happens to suit it.



Right: ***Pleurothallis strupifolia***

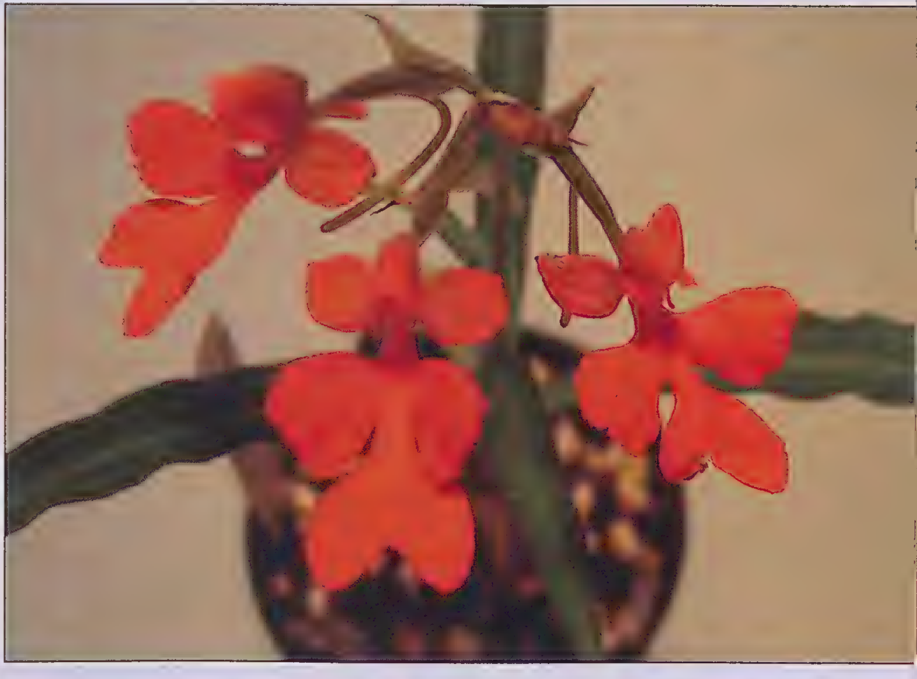
Habenaria rhodocheila

The genus *Habenaria* contains about 600 species and is one of the few orchid genera that are found in both the old and new worlds. That is, both Asia and the Americas. In fact, it is found from Africa, right across Asia (including Australia), and in both North and South America, mostly in grassland areas. The species are terrestrial, deciduous, and die down to an underground tuber while dormant.

Most of the Habenarias have white or green flowers, but my favourite is the brilliantly coloured *H. rhodocheila*, which comes in a variety of colours including - brick-red to orange, yellow, pink to blush pink, and I believe there is also a white. Some botanists have split the different colour forms into separate species. It comes from Thailand, Laos, Cambodia, Vietnam, Malaya, China, and the Philippines. Plants typically grow on mossy rocks along streams, mostly at an elevation of about 600 to 1100 metres. They have 5 or 6 soft fleshy green leaves arranged in a rosette from near the base of the stem, but the leaves are self-supporting and stand up well clear of the surface of the medium. The leaves are about 12cm long by 2cm wide, and on some plants, have a distinct reddish brown stipe along the edges. I have always thought that the red strip on the leaves might be associated with the plants that have the deeply red-coloured flowers, but don't hold me to it.

The flowers come at the end on an upright stem from the centre of the rosette of leaves. I am told it can be up to 60cm tall and have a dozen 35mm flowers but in my experience, based on my only moderate success in growing it, the stem is much shorter (perhaps 15-20cm) and has only 5 or 6 flowers.

Below: ***Habenaria rhodocheila***



Culture: The above ground part of the plant dies down in late Autumn leaving the underground tubers dormant during Winter. They shoot again in late Spring. If I am repotting, I do it while the tubers are dormant, but I wait until after the cold weather first. I have found that a rather open mix works best for me. Something like a *Paphiopedilum* (slipper orchid) mix with some finer material added to keep it evenly moist. If the pots ever stay too wet, the tubers will rot, so obviously the relationship between your mix and your general watering practice is very important. When the new shoots appear, don't be too quick to resume full watering. It is probably best to keep the medium just moist without getting water in the crown of the shoot until it gets properly established and hardens up a bit. Once the growth is established however, I keep it in the glasshouse with all the other orchids that reside there and water and fertilise them all at the same time.

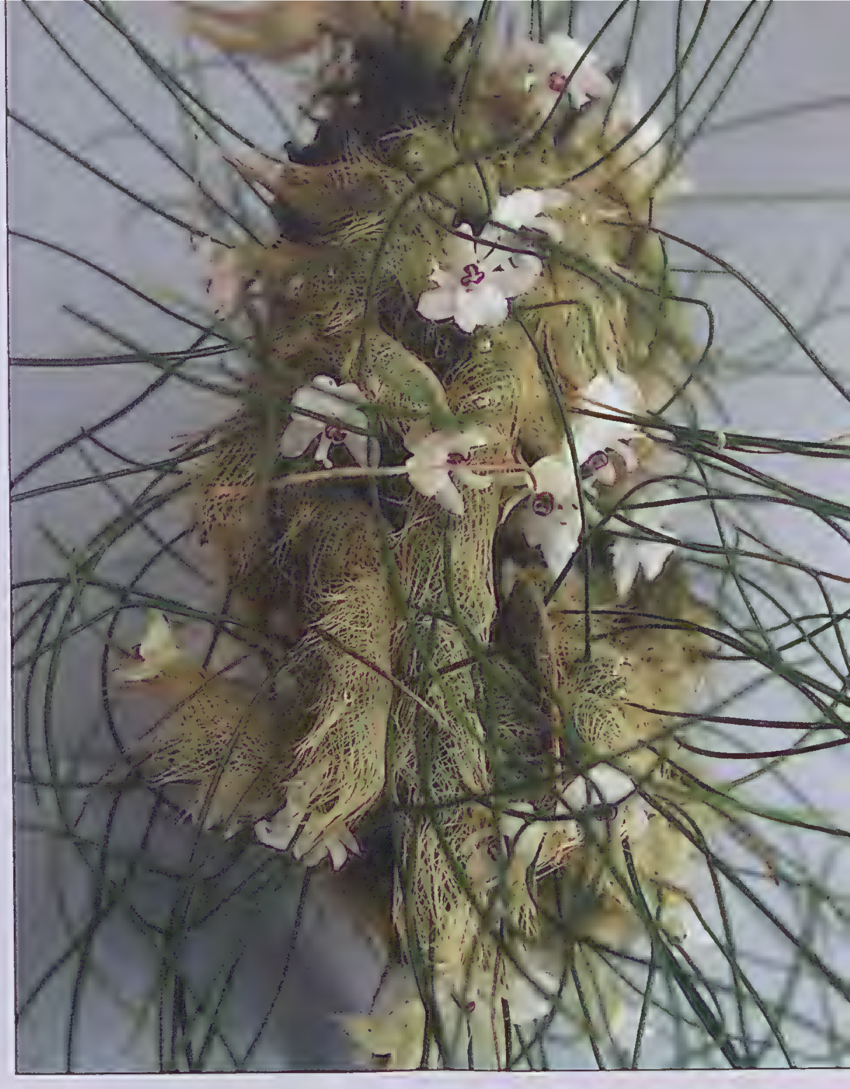
By the time this orchid flowers each year I have been watching it carefully for a while, but I am still enchanted each time it finally bursts into bloom. The colour is just so stunning.

Isabelia virginalis

This gem is a miniature member of the Laeliinae from the coastal mountains of Rio de Janeiro, Sao Paulo, Parana, and Minais Gerais in Eastern Brazil. There are two or three species in this genus (depending on who you follow), but although its sister *Isabelia pulchella* (syn. *Neolauchea pulchella*) is the better known and more common in collections, I think *Isabelia virginalis* is much more beautiful and fascinating, a real jewel of the orchid world.

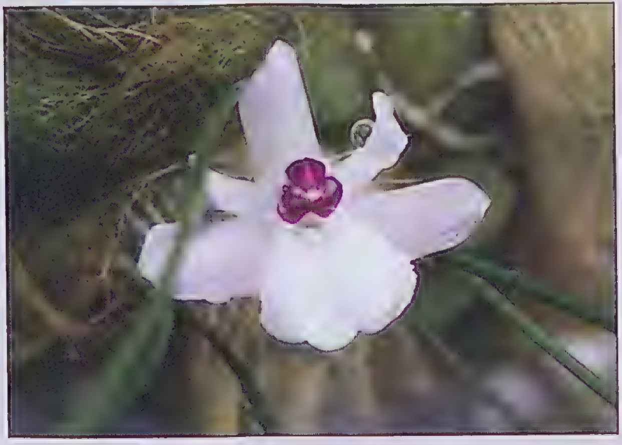
It is natural to admire orchids for their flowers, and *Isabelia virginalis* certainly has beautiful, long lived sparkling flowers, even if they are a tad small. They are a lovely pale lavender with a small purple patch right in the centre, and at 10mm diameter they don't need a magnifying glass to appreciate them. However, and I am not sure I should admit this, lest you all see what a real orchid nut I am, it is the plant form that really draws me to this one. Is there any other orchid that grows its own hairnet to cover the nakedness of its pseudobulbs? What modesty, surely that demands respect!

Its pseudobulbs are about pea size, being around 7 to 10mm in diameter. They grow in mats and chains with the pseudobulbs closely packed together, and each pseudobulb has a single needle like leaf about 3 to 7cm tall. Covering the pseudobulbs, and effectively making them look like one organism, there is this amazing, fine net of woven fibres. The whole caterpillar like effect of the chains of net-covered bulbs, and the attractive leaves and flowers, is just so different to other orchids. I am sure I am not alone in falling in love with it from pictures in a book before I ever saw a live plant. Right from the time I saw that picture, I always hoped I might one day acquire a plant. We are shamefully acquisitive animals we orchid collectors!



Above: ***Isabelia virginalis*** – plant habit

Below: ***Isabelia virginalis***



Anyway, for years I had never seen a plant benched at a meeting or a show, and although I always had it in the back of my mind to look for it, I never really thought I would ever really see one for sale. Then, one day about ten years ago, I saw a single mounted plant for sale on Murray Shergold's Easy Orchids stall at one of the big orchid fairs. I couldn't believe it! I swiftly took it down from its sales display and couldn't get my money out of my pocket fast enough. I knew what it was, and finding it was fantastic. Since then I have grown that plant successfully and flowered it every year, and it is definitely one of my most treasured orchids.

Culture: In nature, *Isabelia virginalis* grows on small twigs and branches in those cool misty coastal forests of Brazil. It is one of those orchids that must be mounted rather than potted. I fear it may quickly rot if potted. Mine is still mounted on the piece of tree fern it was on when I bought it but it will soon need to be remounted.

The coastal mountain habitat probably makes it sound like it would be a cool grower, but the mountains there don't have much altitude, and in nature I don't think the orchids would be subjected to the depth of the cold Winter temperatures we get here in Sydney. I think intermediate conditions would be preferred. I grow mine hanging up near the glass in the heated glasshouse, but the temperature in there regularly dips to about 10 or 12°C, so it is not a really hot, hot house. I suspect that *Isabelia virginalis* would grow even a little cooler, but I have not been game to try it when it has been doing so well exactly where it is. I just love it.

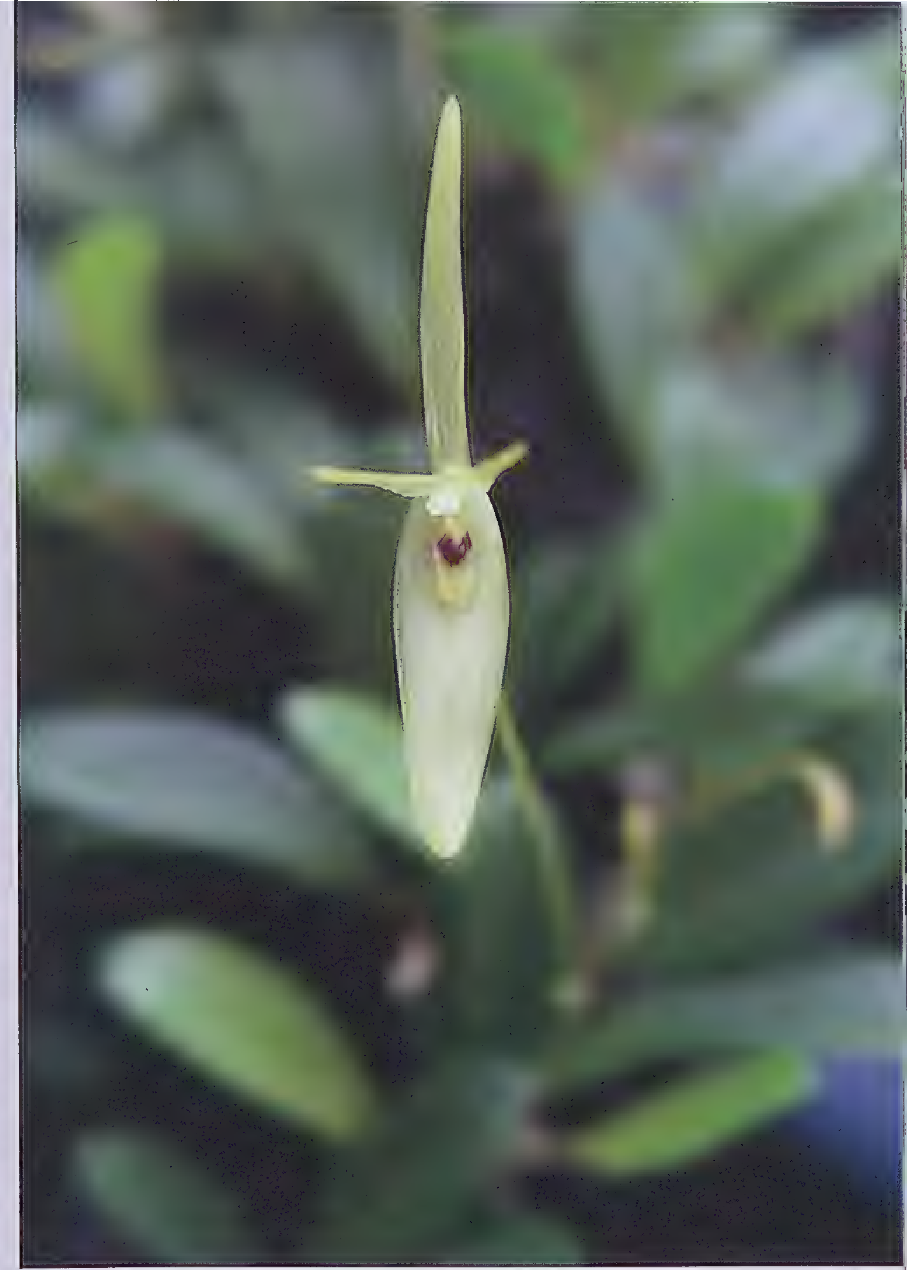
Barbosella species

This is another genus of little South American miniatures. You must have guessed by now that I kind of like miniature orchids but I assure you I do have big ones too. The genus *Barbosella* is a member of the Pleurothallidinae family, so it is related to *Masdevallia*, *Pleurothallis*, and *Restrepia* etc. There are about 20 or so species in the genus. They are dwarf to miniature; cool to cold growing epiphytes found from Central America, all the way down to Peru in the west, and Brazil in the east, of South America. Like the other Pleurothallids, *Barbosella* have a thin, non-pseudobulbous stem (a ramicaul) topped by a single leaf. The solitary flowers emerge laterally from the top of the ramicaul where it joins the leaf, and are held well out away from the foliage.

The reason I haven't mentioned one particular species name as my favourite by now, is partly because I happen to like all the Barbosellas, but also because many of the Barbosellas sold in Australia are hopelessly misnamed. I have several plants of the species I have decided to call my favourite, and I acquired them under three different names. I am pretty sure most are all the same species however, and I think the correct name is *Barbosella cogniauxiana*. The plants I have as *Barbosella handroi* and *Barbosella porschii* are considered synonyms. And I am not sure if my *Barbosella australis* is correctly labelled or yet another example of what is obviously a variable species.

Barbosella cogniauxiana is another Brazilian, from Sao Paulo state, south of Rio de Janeiro. It occurs as an epiphyte in very wet forests and flowers in the Spring. The plant is very small, with about 10mm roundish leaves on very short (almost non-existent) ramicauls.

Culture: When I first acquired my plants I grew them in the glasshouse, just in case, but eventually I left one in the shadehouse over Winter, to test its cold tolerance. It didn't bat an eye so to speak. Even though it is clearly a cold grower however, it must be remembered that this it is a very small plant without pseudobulbs, and it does come from naturally moist areas. If your shadehouse tends to dry out in Summer, the higher humidity in a glasshouse is probably an advantage. It needs to be mounted on cork or tree fern as it is something of a scrambling grower and can quickly cover the surface on which it grows. The narrow lime green flowers are about 25mm x 3mm but they are held out well away from the plant on 50mm stems, and when it blooms, the whole plant flowers at once. The simultaneous display is wonderful, as you can see from the picture.



Above: ***Barbosella australis***
(may be a form of *B. cogniauxiana*?)

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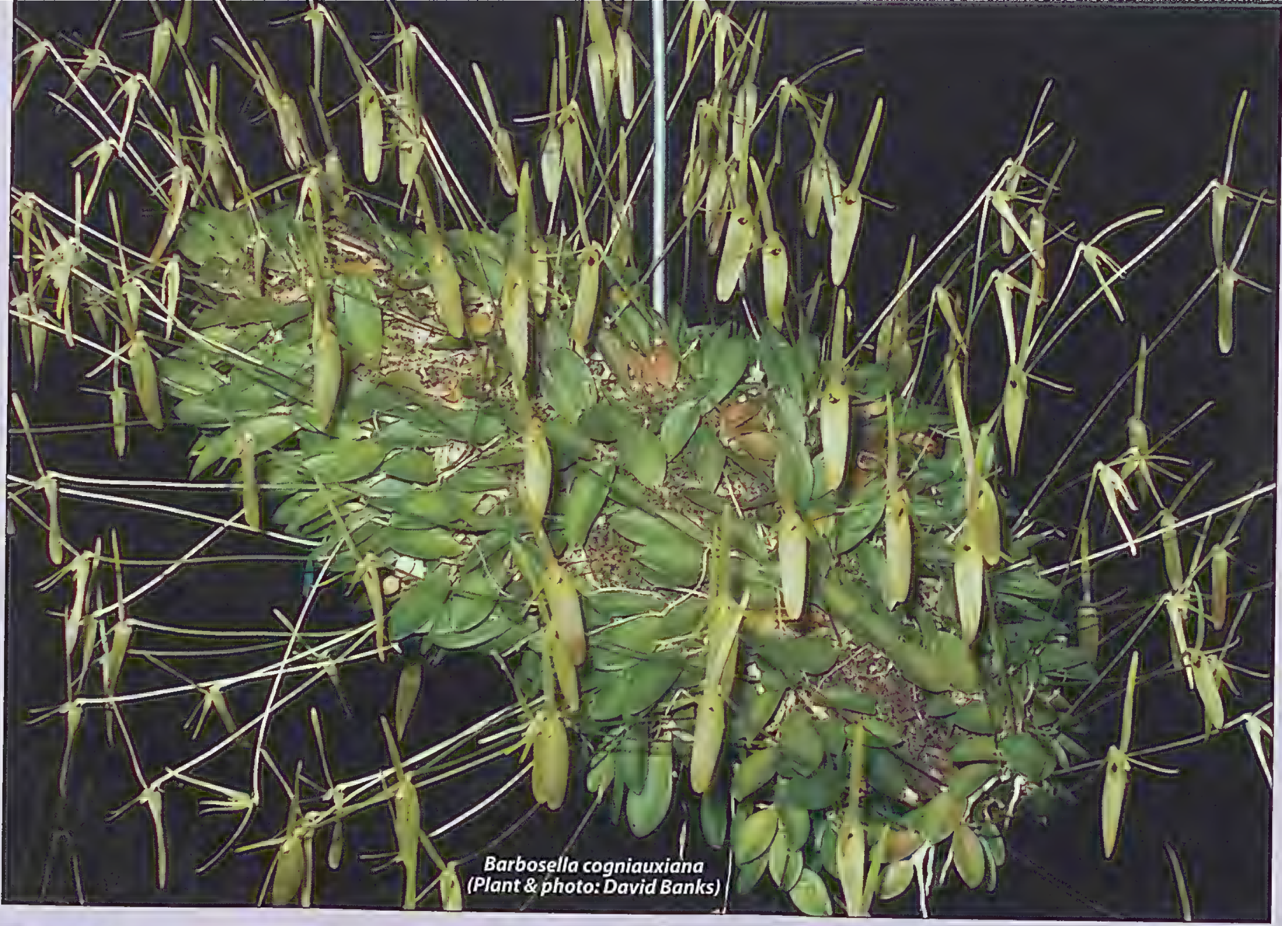
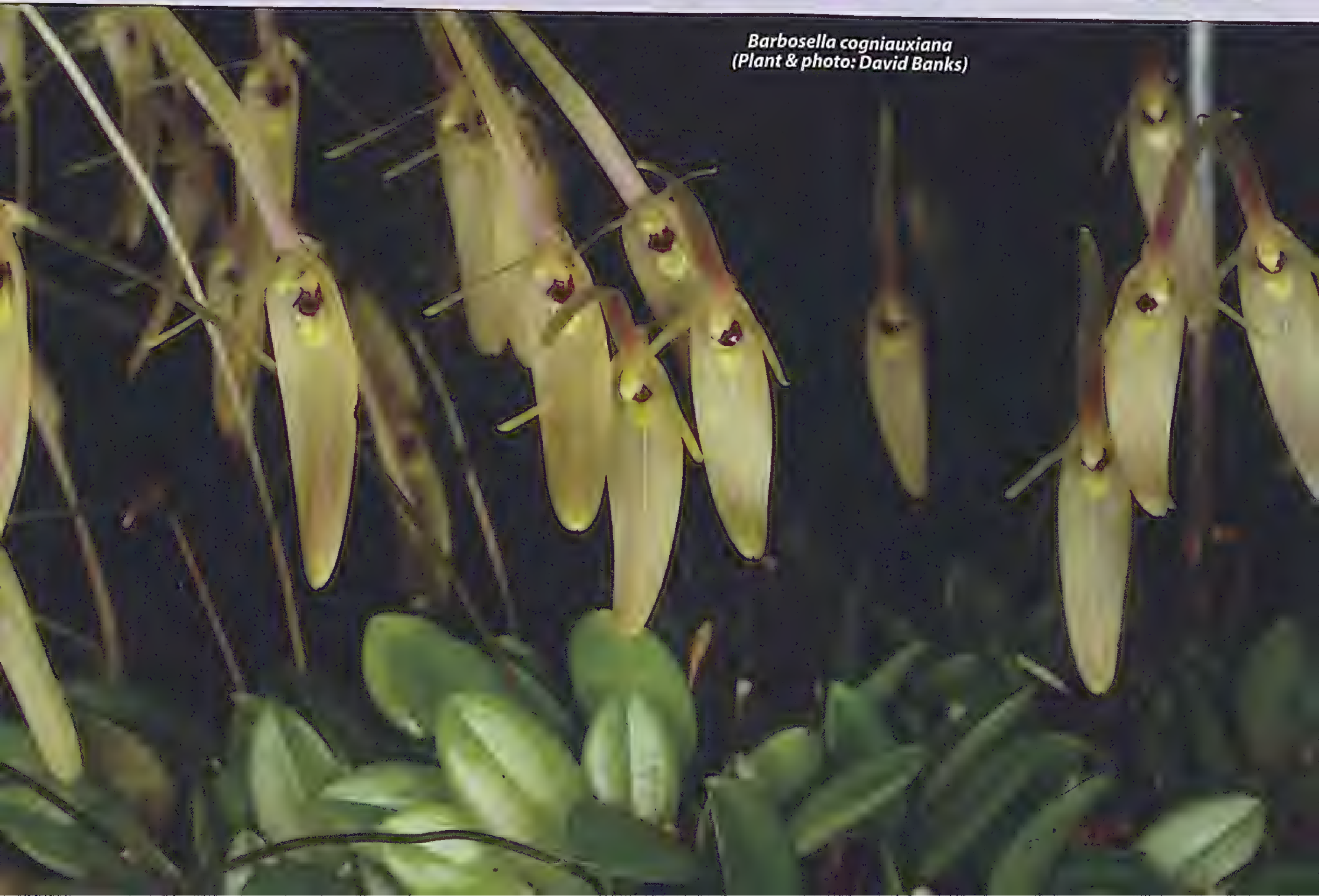


Barbosella cogniauxiana
(Plant & photo: David Banks)



Barbosella cogniauxiana
(Plant & photo: David Banks)

Calanthe tokunoshimensis

My final selection, but not last by any means, is *Calanthe tokunoshimensis*, described in 1969. To explain why, I have to tell you a story. In my early years as an orchid grower, I was working as a technician for a Japanese computer manufacturer, and was lucky enough to be sent to Japan to train on a new model. A grower friend here in Sydney had a couple of contacts with Japanese growers, and he kindly gave me introductions to go and meet them while I was over there. One of these men happened to be the President of the Japanese Calanthe Society at the time, and he also ran a small nursery outside of Tokyo. I was very nervous about going out to see him, but I did, and luckily, his English was a lot better than my 20 or 30 words of Japanese. He was a very gracious and generous host.

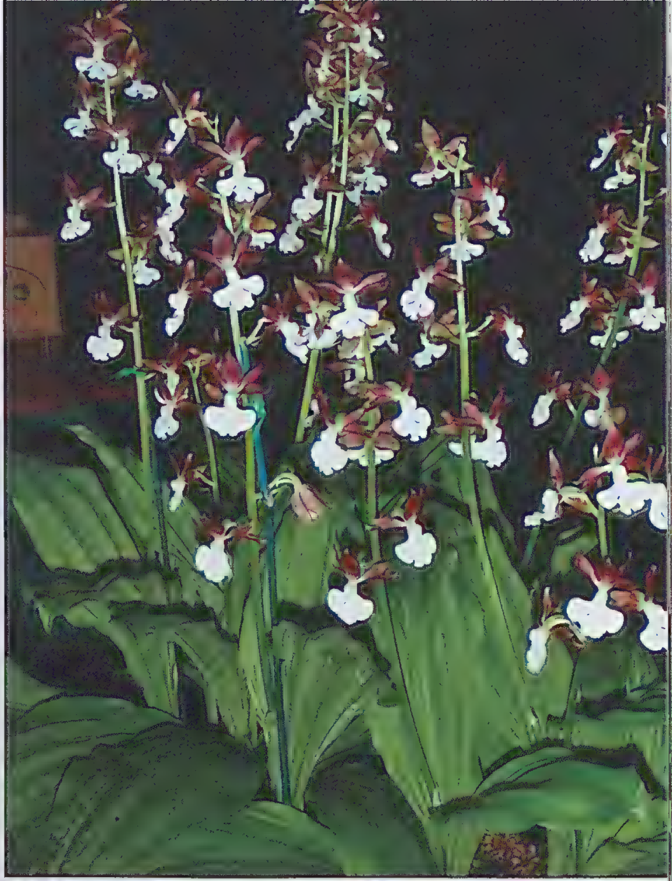
I was amazed by some of the innovative things they did at his nursery, especially in regard to heating, but that is another story, and this one is about his introducing me to the evergreen *Calanthe* orchids. None of these were in flower at the time, but he took me up the hill above his nursery, and showed me the many hundreds of plants he had growing landscaped in the ground up there under pine trees. He also showed me pictures of those same plants in flower in the Spring, and also some of the clones that he most highly prized. I couldn't believe the colours and the display they made. Why had I never heard of these Calanthes before? They were amazing.

When I was leaving, he gave me a dozen or so of these wonderful species Calanthes to bring home. They survived quarantine here ok but you must remember that I was barely out of Novice class at this time and although I grew them for a few years, I am ashamed to say that nearly all of them eventually died of neglect and ignorance. The only one that survives today is *Calanthe tokunoshimensis* and over the years I have given away, and sold, many pieces to make sure it doesn't die out from neglect like the others I killed. For some reason evergreen Calanthes never seem to be imported and I have heard that it is rather difficult to get the Japanese to sell them.

The name "*tokunoshimensis*" is not generally recognised as a currently valid species name, and it is mostly regarded by many as a synonym for the widespread and variable *Calanthe discolor*. Some sources give it as a synonym for *Calanthe aristulifera*, (named in 1878) but as that is a pure white species, I doubt that possibility. I have also seen it referred to as *Calanthe discolor* var. *tokunoshimensis* but have not located a reference to where it was validly published.

Calanthe discolor is a very variable species with many different colour forms. I suspect that in Japan at least, many of the select forms are given local names that reflect the geographic area from which they were found, and that is perhaps the explanation for the name '*tokunoshimensis*'. Anyway, whatever the background, *Calanthe tokunoshimensis* is the name given to me with the orchid all those years ago, and as it was given to me by someone who should know *Calanthe* species better than most, that is the name I continue to insist on using.

Calanthe discolor is found in China, Korea, Japan and the Ryukyu Islands, in shady and moist places in dense forests at elevations of 780 to 1500 metres. It isn't deciduous but might be more accurately described as semi-evergreen. Each leaf only lasts 2 to 3 years, and by the second year, is beginning to looks rather worn and tatty. The orchid blooms each year in the spring from the centre of the fresh new leaves that are emerging on the developing new growths. The 30 to 50cm inflorescence carries up to 15 beautiful flowers that are 30 to 40mm diameter. They can be red, red and yellow, brown, brown and white, and a variety of other combinations. My *Calanthe tokunoshimensis* is chocolate and white.



Above: *Calanthe tokunoshimensis*
(Plant: Jim Brydie, Photo: David Banks)

Culture: *Calanthe tokunoshimensis* is a cold grower, and while it isn't deciduous, it is rather dormant through the winter despite the fact that it still has leaves. Watering during this period should be minimised to just keep the plant just moist, because keeping it too wet in Winter leads to rotted roots. It is a surface terrestrial and seems to do best in an open humus rich medium. I have grown mine successfully in garden potting mix, bark based mixes, sphagnum moss on its own, and peat and perlite. It seems to be a hardy grower and is a very reliable flowerer. About the only problem I have ever found, is that scale insects and mealy bugs, seem to love it as much as I do.

All plants grown and photographed by the author except for *Barbosella cogniauxiana* (grown and photographed by David Banks). David also took the photos of my *Calanthe tokunoshimensis*.

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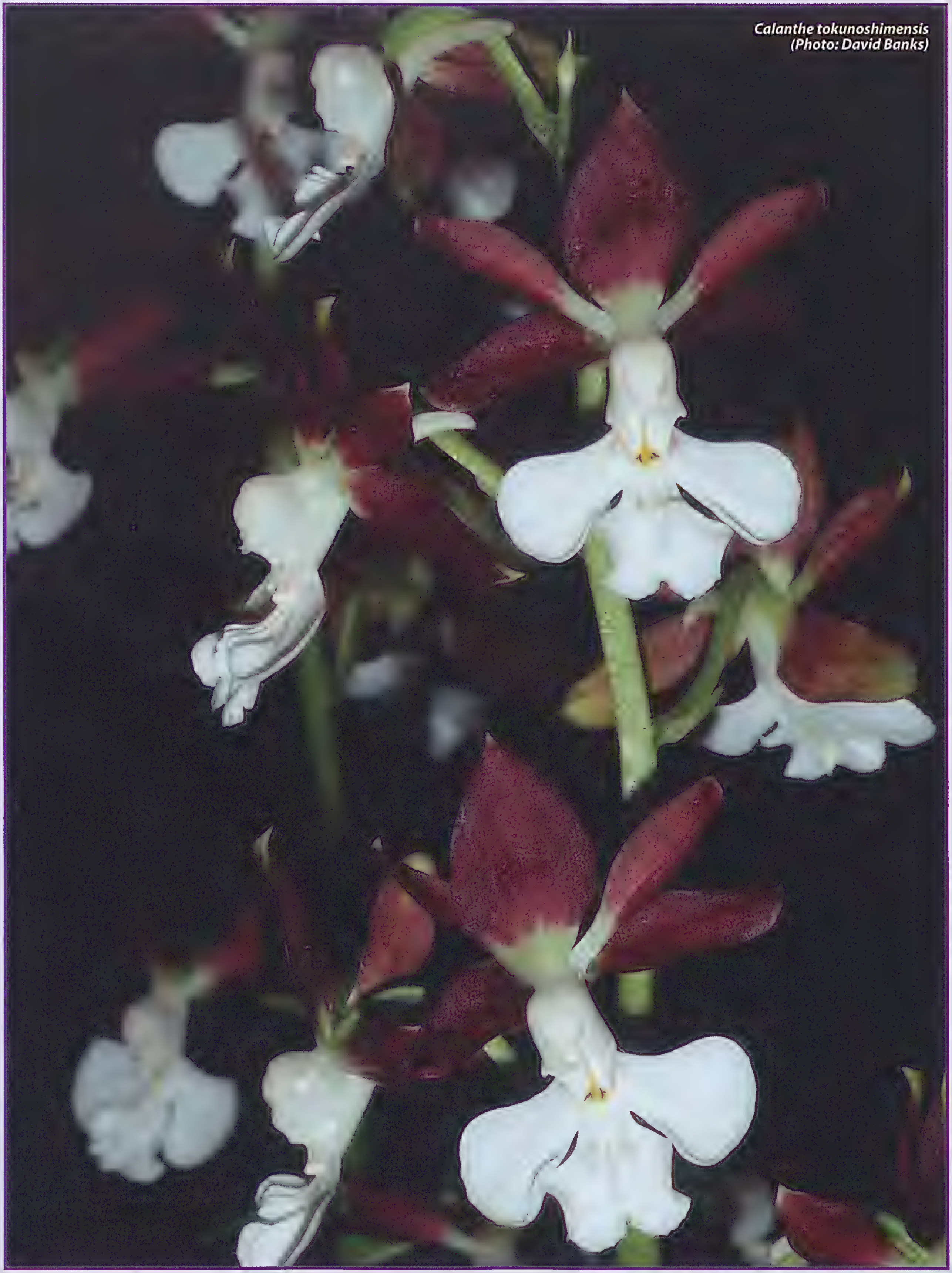
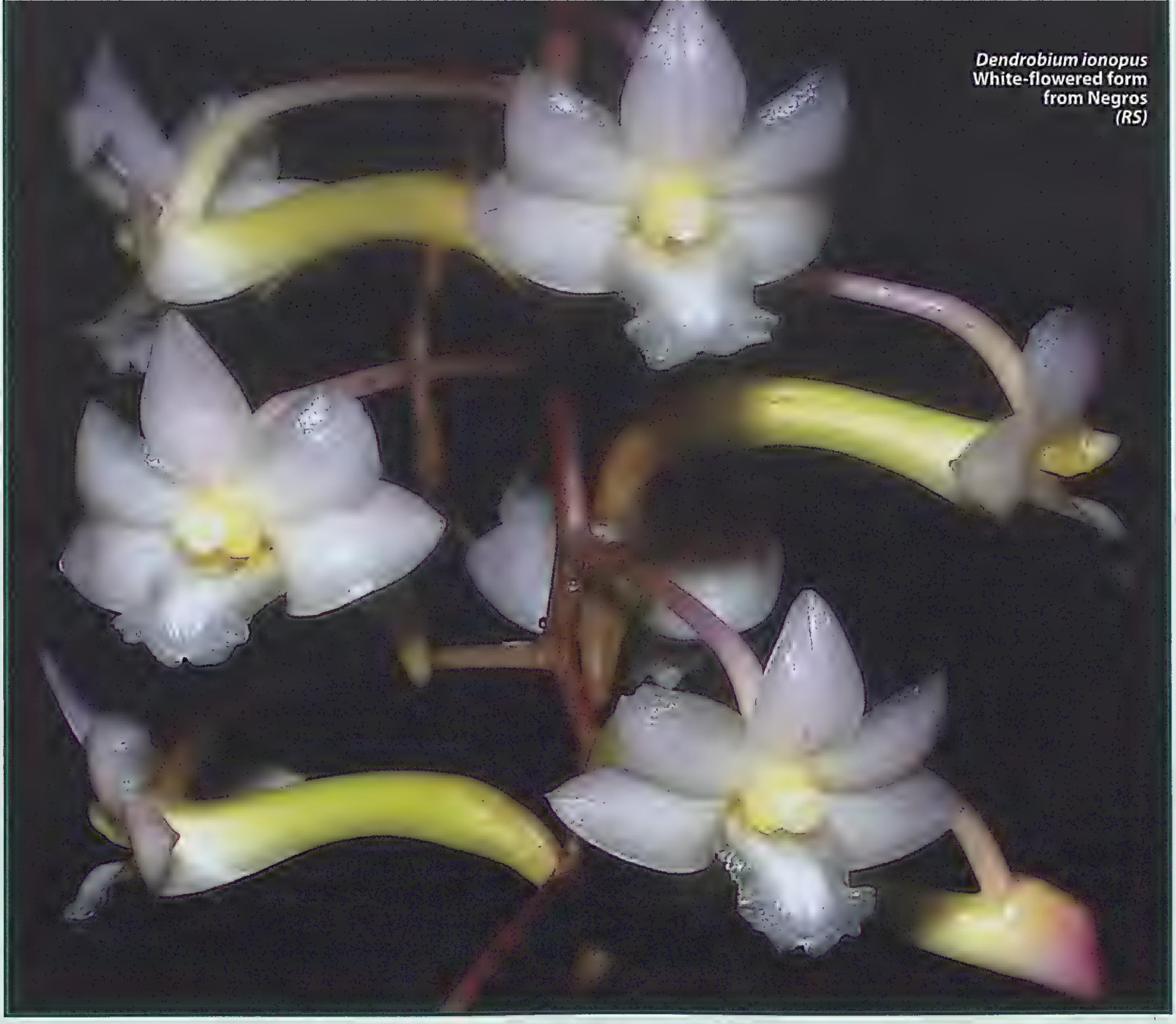
- Internet Orchid Species Photo Encyclopaedia - http://www.orchidspecies.com/
- Charles Baker's orchid information - www.orchidculture.com
- ***Orchids of Brazil*** by Jim and Barbara McQueen

Jim Brydie
President, Ku-Ring-Gai Orchid Society
Past President, Orchid SPECIES (NSW) Inc.
Email: jimbrydie@bigpond.com



Calanthe tokunoshimensis
(Photo: David Banks)



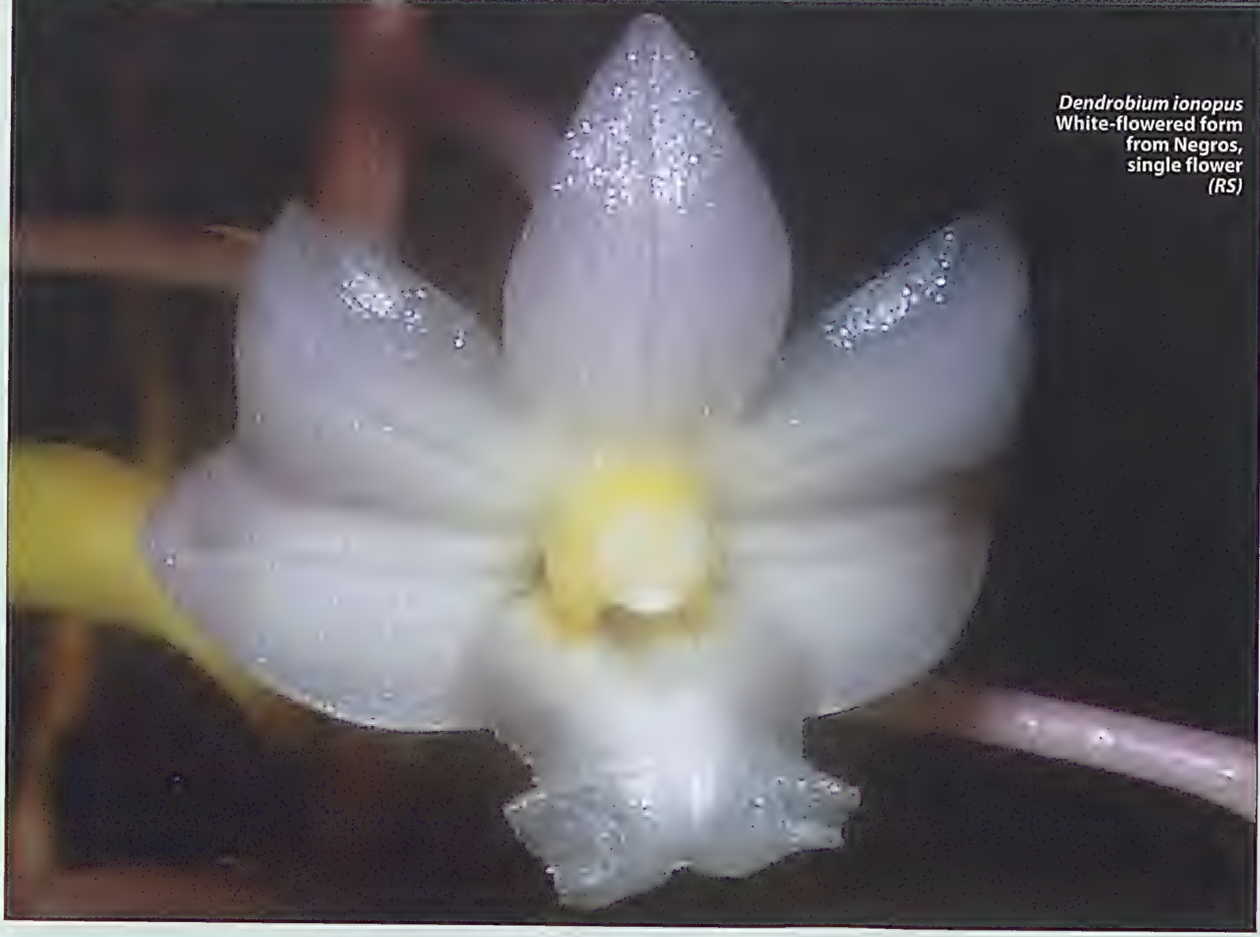
Dendrobium ionopus
White-flowered form
from Negros
(RS)

A White Form of *Dendrobium ionopus* From Negros, Philippines

by Jim Cootes

During a recent trip to the Philippines, I had the opportunity to visit a friend who had recently spent some holiday time on the island of Negros, in the central Philippine island group known as the Visayas. Whilst he was staying on Negros, he went exploring a couple of lakes in the mountains, near to where he was holidaying. This region is in a National Park and much of the original flora and fauna thankfully remains undamaged and mostly in pristine condition.

The most interesting plant that he found, and photographed, was a pure white form of *Dendrobium ionopus*, which is usually coloured bronze, with darker veining, or greenish-yellow. More recently, we received additional images of the white-flowered form of the species from another source, but still from the same area. This white-flowered form is not a true albino, as the buds have a slight pale pink flush, as can be seen in the images. There are also obvious anthocyanins on the



Dendrobium ionopus
White-flowered form from Negros, single flower *(RS)*

flower pedicles and inflorescence. We believe this is the first time images of this rare colour form have been published.

Dendrobium ionopus is a member of section *Calcarifera*, which can be characterised by the long mentum (spur) and the unlobed labellum. The Philippines are rich in species of this section, with about 16 members. All the species have very attractive flowers, which are usually produced in good numbers, are nicely coloured, and are worthy of a place in any orchid species collection.

Professor Heinrich G. Reichenbach named this species in 1882, in the *Gardeners' Chronicle*. The specific epithet refers to the deep violet striping on the underside of the leaves. *Dendrobium epidendropsis* Kraenzl., *Orchis* 2: 79 (1908) is a later synonym.

The plant is semi-pendulous, with pseudobulbs reaching lengths of 40cm, and bears its leaves on the apical third of the stem. The leaves are lanceolate in shape, and in some clones, they are finely striped with deep violet on the underside. The inflorescences, which are pendulous, usually appear on one-year old pseudobulbs. Repeated flowering, from the same canes, is common. The blooms are about 20mm in diameter with the spur/mentum being almost 30mm long.

This species seems to grow best mounted on treefern or planted in a small terracotta pot in pieces of pine bark, and pebbles of a similar size. The winter minimum should be 12° Celsius, and the light level should be about 60% shade. Constant air movement and high humidity are also necessary for optimum growth. Regular applications of both organic and inorganic fertilisers, at half of the manufacturer's recommendation, should have this delightful species growing and flowering quite happily.

Acknowledgements:

Sincere thanks to Ravan Schneider and Ronny Boos, both from the Philippines, for the use of their images to illustrate this white form of *Dendrobium ionopus*; and also Dr. Nelson Geraldino, Philippines and Dr. Ed de Vogel, Leiden University, for their pictures of the green form of this species.

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Seidenfaden G. 1977. 'A Note on *Dendrobium serpens* (Hook.*f.*) Hook.*f. Gardeners' Bulletin*, Singapore. Vol. 30 pp 269-274. ■

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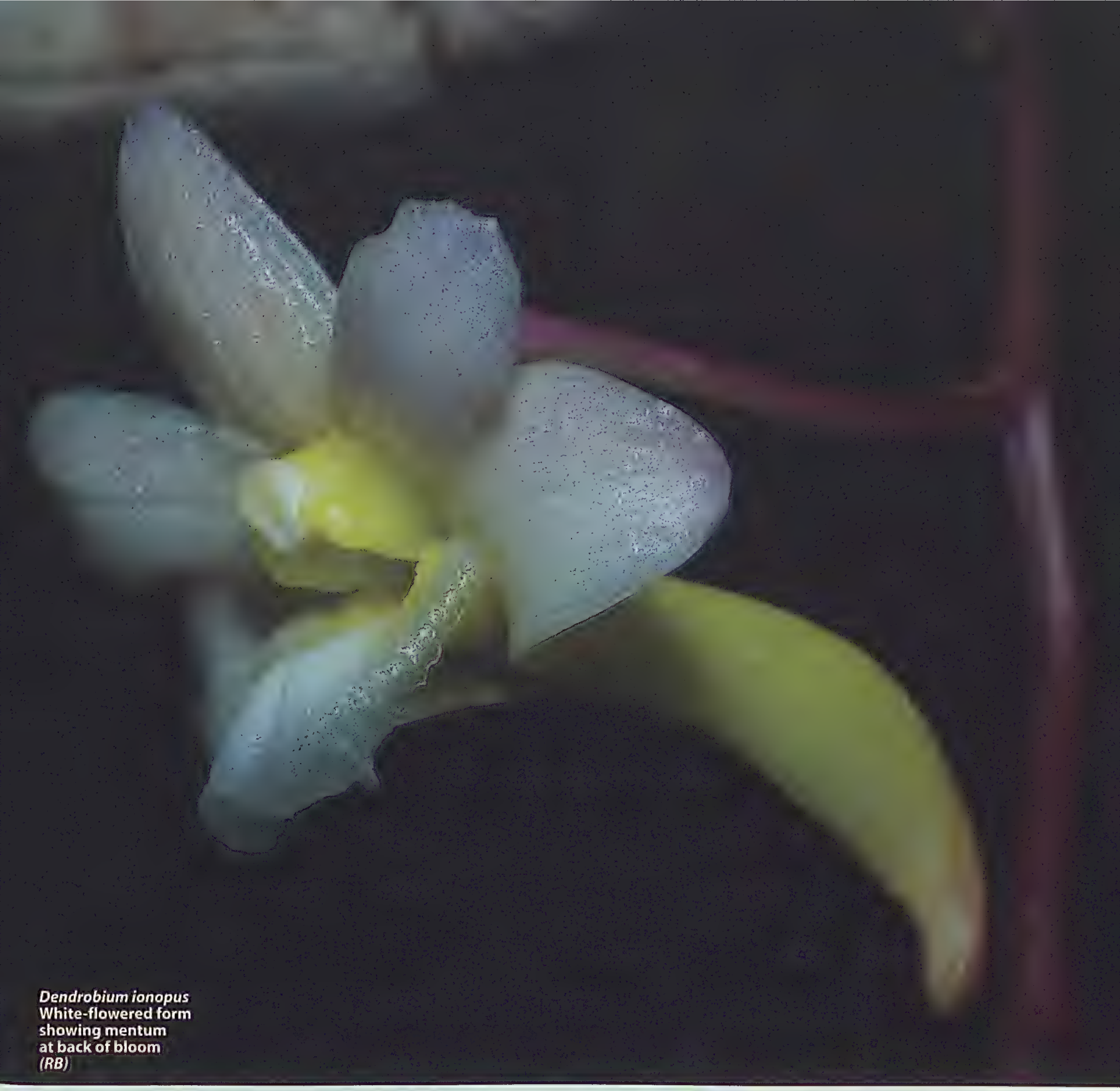

Dendrobium ionopus
White-flowered form showing mentum at back of bloom *(RB)*

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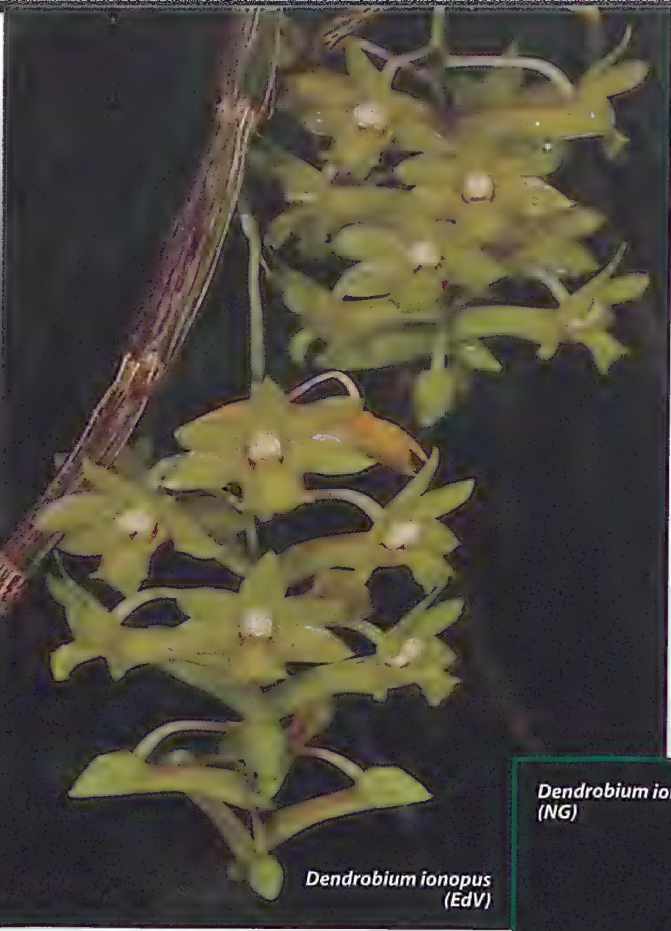
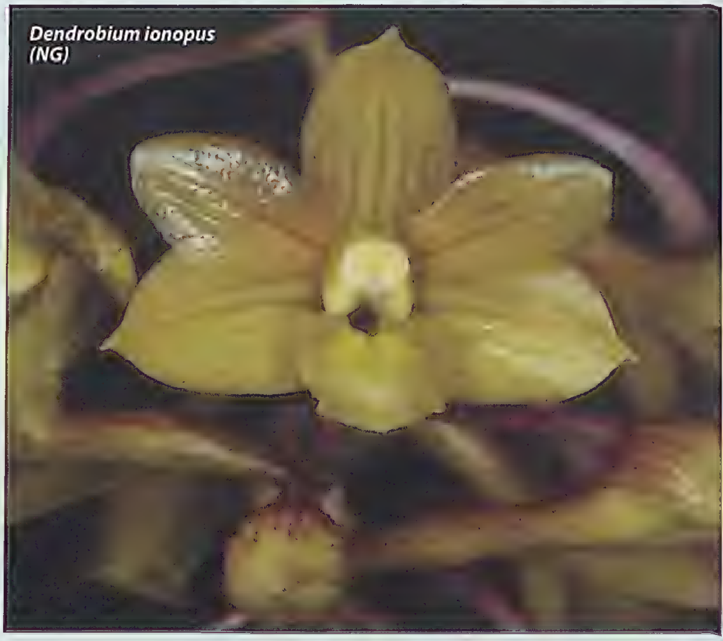
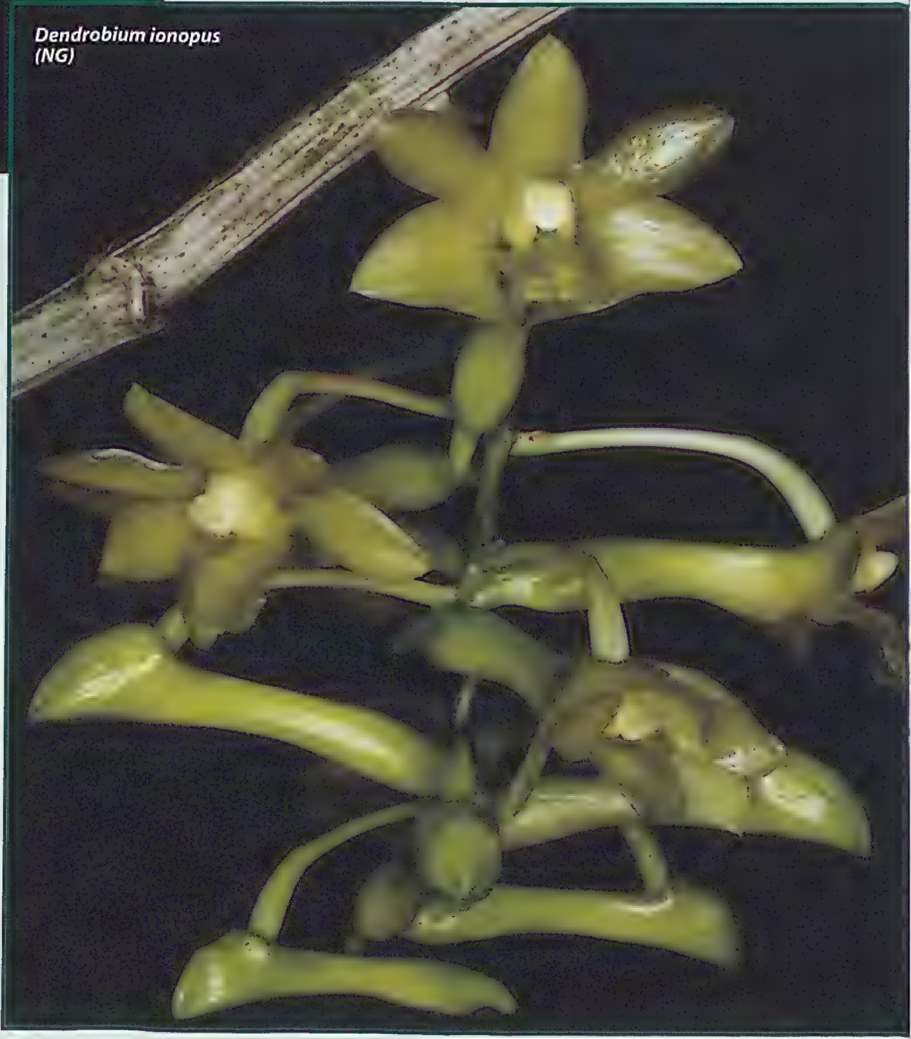


Dendrobium ionopus (EdV)



Dendrobium ionopus (NG)



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Kevin John McFarlane

(1922-2009)

Kevin was born on the 1st July 1922, in Mareeba, North Queensland. He died in Cairns (where he spent most of his life) on 2nd December 2009. Kevin was one of nine children, to Jack and Winifred McFarlane. Kevin grew up in Cairns and the surrounding district.

Kevin enlisted in the 2nd World War into the Australian Imperial Force in March 1942 as Private Kevin John McFarlane in the 15th Australian Infantry Division; service number QX31111 for operational service in New Guinea, the Solomon Islands and New Britain. He was wounded in action in the Solomon Islands and carried out by the Fuzzy Wuzzy Angels. He was discharged in May 1946. He was mentioned in dispatches and received two Pacific Star Medals.

After the war Kevin met and married his first wife Gwen in 1947, they had two children Dianne (Tina) and Lloyd. Kevin worked as a Barman, Cane-cutter and prospector for wolfram in the Mt Carbine area. Kevin had been married for five years when Gwen tragically died after a short illness. To help recover from the shock; he travelled around Australia on a working holiday.

When Kevin returned to North Queensland he went prospecting in the Palmer River area. While prospecting he pegged out some ground which later became known as the Dianne copper mine, named after an aboriginal friend.

He first became interested in orchids in 1948. While prospecting on horseback he came upon a rocky outcrop of Cooktown orchids which was alive with a mass of purple blossoms, a fantastic sight. He collected only a few to see how they would grow in cultivation. He was surprised how tough they were only tied to ti-tree sticks, surviving year after year. This was the start of something great.

Above: Kevin McFarlane

In 1956 he met and married Elizabeth (Beth) Fallon. Kevin and Beth purchased 26-28 Goodwin Street, Edge Hill, Cairns, straight after the 1956 Cyclone Agnes. The property was littered with trees and branches but they immediately saw the potential and beauty of the place. They loved the location, next to the Botanical Gardens. Together they had four children, Peter, Karen, Deborah and Janine. Kevin, was employed in the building industry in the tiling and flooring division and later self employed in the same type of work.

Kevin acquired a few exotic types of hybrids and joined the local Orchid Society. He built three orchid houses and soon had 30,000 Terete Vanda's nestled in coconut husks which stretched from the front gate to the front door.

Once Kevin gained the knowledge of growing his plants successfully, he decided to try hybridising and flasking (embryo culture). In the late 1950s, little was known of the process. He wanted to specialise in *Dendrobium* breeding (i.e. the Cooktown orchid family) because of his first encounter with them in nature. He managed to save and grow a few plants from flasks, but was disappointed at his success rate and the slow growth of the plants. A single plant would only grow a single growth per year. He felt there must be other members of the *Dendrobium* genus that would be more prolific growers and compatible parents. At that time a friend in New Guinea sent him some seed of their native species to flask. The description of these plants was just what he was looking for.... unfortunately most didn't survive. He was frustrated, and knew that he would need to gain more knowledge in flasking if he was to succeed with his breeding.

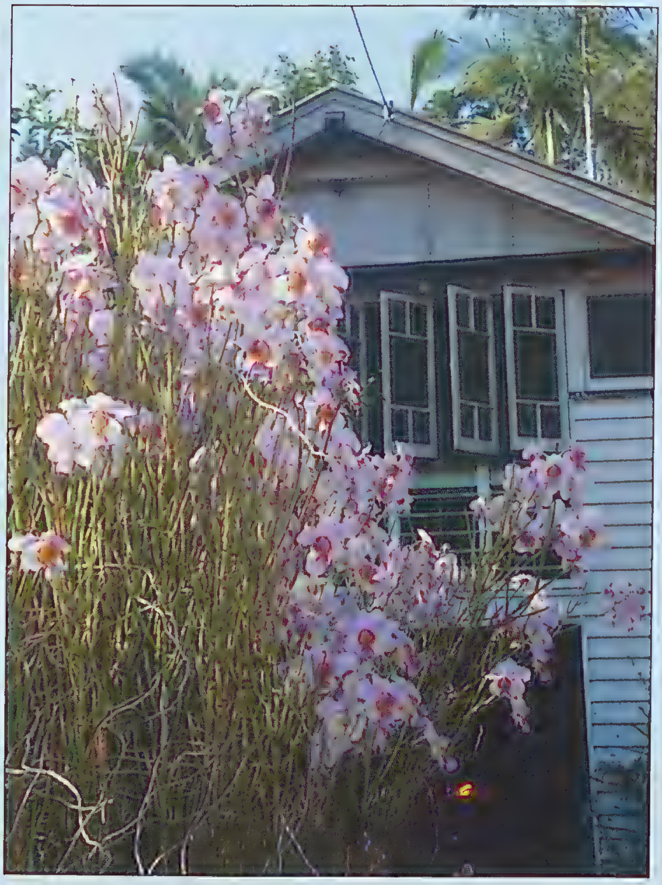
The 5th World Orchid Conference was being held in Long Beach, California in 1966, Kevin had a sister living there, and so, scraping some spare cash together he attended the Conference. His main aim was to gather more information on flasking. The Americans were helpful and put him on the right track. He exhibited some of his Dendrobiums at the Conference, they were non-competitive, but he received enough attention to give him some encouragement. His first taste of success came in 1970 when plants of his intersectional crossing involving the New Guinea species began to bloom, creating a new look at orchid hybridising in Australia. They grew faster and bloomed all year round, with more beautiful blooms. The crossings were an immediate success. He registered the hybrid as *Dendrobium* Impact. One plant won the prestigious Gold Medal at Frankfurt, Germany in 1975. This was the only Gold Medal won for Australia at the 8th World Orchid Conference.

Kevin was the first person to venture into striping and was the originator of the famous *Dendrobium* Candy Stripe. These orchids were most sought after all over the world. Much work on hybridising since that time has improved the blooms resulting in a Silver Medal at Miami in 1984.

A breakthrough was established in 1981 with a hybrid he created involving *Dendrobium speciosum*. This hybrid was an incredible improvement on both parents, producing beautiful long lasting blooms on the stem. The first plant to flower was exhibited at the OSNSW Winter Show in March 1981. It was awarded a HCC, an AD and awarded the Pre-eminent Orchid of the Show. This hybrid is registered as *Dendrobium* Australian Beauty.

Kevin attended, exhibited and presented papers at many Australian Orchid Conferences, World Orchid Conferences and Asia Pacific Orchid Conferences. He attended all World Orchid Conferences from the 5th Long Beach (1966) through to the 13th in Auckland (1990).

Above: Kevin amongst his favourite Vandas in Thailand



Above: Terete "vandas" in the front yard of the family home

Left: Vanda hybrid grown in the garden

The following lists the papers given by Kevin at these Conferences:

1. Modern adventures in *Dendrobium* hybridising
2. Complex *Dendrobium* hybridising in Australia
3. Germination and Growth of intersectional *Dendrobium* hybrids
4. Futuristic *Dendrobium* breeding
5. Simple hormonal and colchicines treatments in orchid propagation
6. Pursuit of excellence in *Dendrobium* Hardcane breeding
7. A taste of intergenerics
8. Viewpoint on Vandaceous intergeneric hybridising
9. Generalising on the Australian *Vanda* Connection
10. Small is beautiful (a paper on miniatures)
11. Pansy *Dendrobium* breeding in Australia

In 1975 Kevin was awarded a Fellowship of the Australian Orchid Council (FAOC), this award was given in recognition for his work in hybridisation of the genus *Dendrobium*. In 1984 he was a finalist in the BHP awards for the pursuit of excellence for orchid growing and hybridising. Kevin had become a perfectionist in his work with orchids, which earned him an abundance of awards and medals.

Kevin had the good fortune to retire at the age of 48, after selling the Dianne Copper Mine. The mine was said to be the largest copper export mine in Australia at the time. The Australian Taxation Department had changed their law not long after Kevin sold the copper mine and wanted a piece of the action. Kevin was genuine that he had pegged out the mine as he was prospecting and did not know its potential. He was able to prove this in the Supreme Court and won his case. Another test that Kevin overcame. This enabled him to pursue his lifelong love of orchids. Both he and Beth followed their passions, his orchids, hers yoga.

Kevin's dream was to have the family interested and create a business in orchids. In 1978, Karen took up the challenge and started a flasking business selling Kevin's hybrids. They started travelling together to many Orchid Shows and Conferences around the globe, eventually Karen presented Kevin's papers. Later other family members joined in, all adding a different gift and story to the McFarlane Orchid ventures.

Kevin attended the Honolulu orchid show each year and became an honorary life member of that society. He loved to visit and see his many friends; Ben Kadama, Richard Takafuji, Dr. Sigawa, Ted Green and his favourite Hawaiian girlfriends Dora and Violet.

A quote from Ted Green to Kevin's family on Kevin's passing "One of the fondest memories of your crazy dad was going collecting with him, he was barefooted, in shorts and wearing an old singlet, climbing barbwire fences, snake infested grass and mangrove swamps, and it did not faze him. That's the way I will remember him."

While specialising in *Dendrobium* breeding, other orchids that he had a great love of were; *Phalaenopsis*, Vandaceous, *Paphiopedilum*, Oncidiums and Cattleyas. He grew many world class orchids and won Grand Champion Orchid with Vanda Gordon Dillion 'Cairns' at Expo 1988, Caloundra. Other notable wins for Kevin were The Grand Champion of the 8th Australian Orchid Conference 1983, Townsville with *Oncidium splendidum*. It was here that he first exhibited his pure green flowered form of the native *Cymbidium canaliculatum*. He also received a Silver Medal and Reserve Champion at the WOC in New Zealand with *Vanda* Kasem's Delight 'Lloyd'.

At the 5th APOC in Singapore he met up with his great friend from Thailand, Professor Rapee Sagarik who he has great respect for and attended his Buddhist ceremony of shaving his head and going into the monastery after his mother died. This was a great honour for Kevin. Other great friends and colleagues include, Dr Uthai Charanari, Mr Chitti Ratanapenchai of the Bangkok Flower Centre. They took him travelling to the north eastern part of Thailand where he saw many orchid species in flower. Thailand was very close to his heart, he loved the people, food and he loved to talk and laugh about the adventures there. His other close friend in Thailand was Phairot Lenavat, who would take Kevin around the Nurseries on his many visits to Thailand. He attended the APOC and Show in Chaingmai, Thailand in 1992.

Kevin had Karen represent and exhibit for him at the APOC in Fukuoka, Japan in 1995. Kevin travelled to Japan with his wife Beth and met and formed a lifelong friendship with Mr Mikado Hanajima. Hanajima gave them a wonderful experience in Japan which Kevin was so grateful for and never forgot. The friendship was also extended many times to the family when they exhibited at the Japan Grand Prix.

Kevin registered hundreds of hybrids in a variety of genera, including orchids named after his wife Beth, daughters and granddaughters.

Kevin and Beth loved living at Goodwin Street, Edge Hill, which was located next to the Botanical Gardens and is commonly known to locals as the cultural precinct of Cairns. Kevin, having lived there most of his life was a great advisor to all the Curators past and present of the Flecker Botanical Gardens and shared much knowledge and support on tropical orchids and plants. When he would travel overseas he would come back so enthusiastic and would love to bring back to his backyard new and exciting knowledge and plants. He is fondly known as "the barefoot guardian of the Botanical Gardens".

Kevin and Beth loved having the family and friends over at cocktail hour; they would get the sunset over the palm trees, a cocktail in hand and some of Kevi's ho-down music. The one requirement was that you "let go of all your troubles and hang loose". Kevin loved to see people having a good time laughing and being in the moment. His love for beauty and joy rubbed off on everyone.

Above: *Dendrobium* Candy Stripe

Below: *Dendrobium* Australian Beauty 'Magnificent'

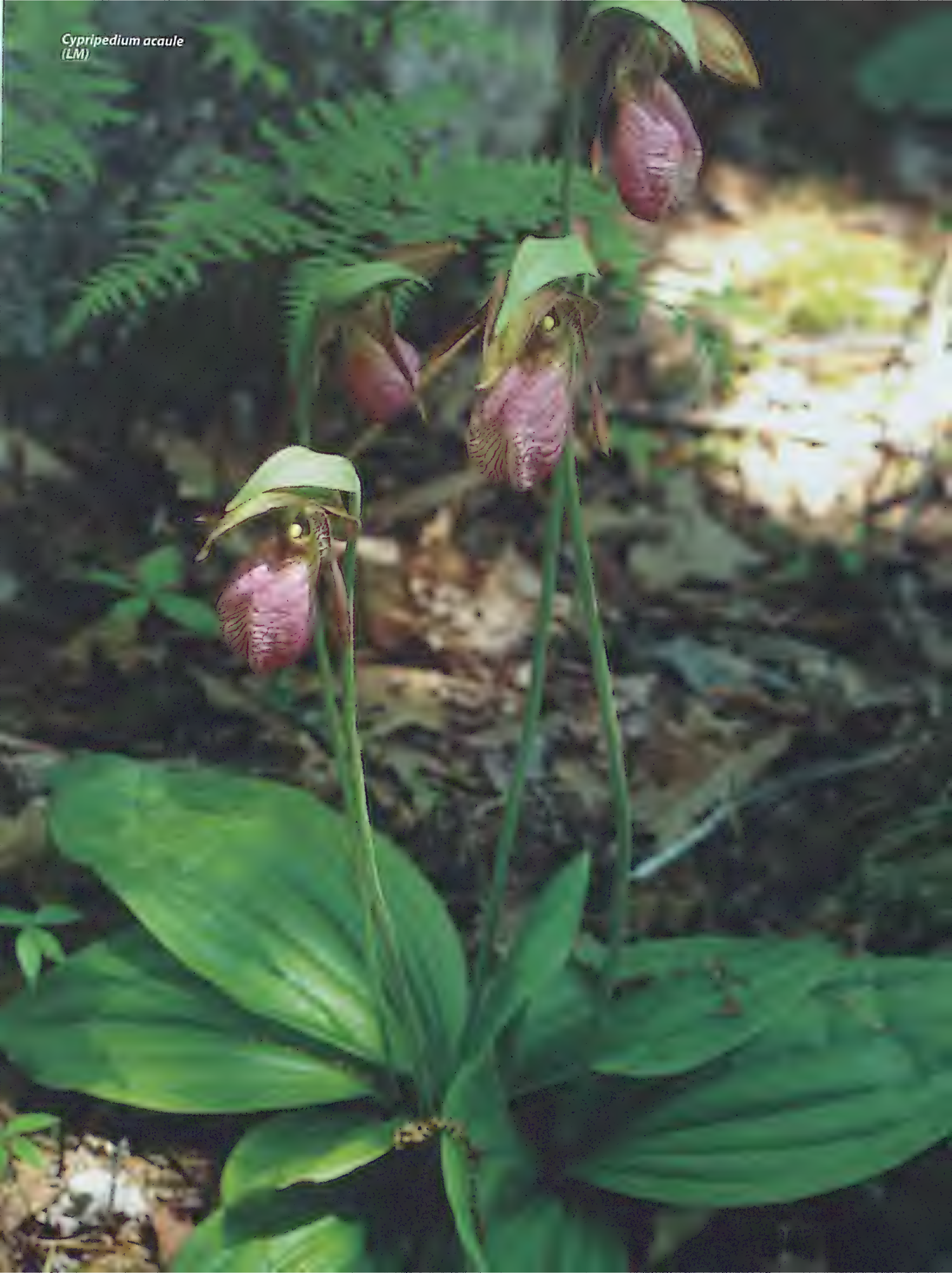
1977 flowering of native orchid now known as *Cymbidium canaliculatum* forma *viridiflorum*

Kevin and Beth will be sadly missed by their children (previously mentioned) and grandchildren, Bronwyn Sisson (nee Perriman) and Nicky Perriman, James McFarlane, Daniel and Lana Scott, Andrew, Toni and Cassie McFarlane and Leon Khan. We are so grateful to have shared this amazing journey with Kevin and Beth, their spirit will live forever in our hearts.

(Thank you to Eric Wilde from the Australian Orchid Foundation who assisted with this tribute. If anyone would like to donate to the AOF to help the conservation of our indigenous orchids, please visit www.australianorchidfoundation.org.au) ■

Janine McFarlane
Email: sweetasretro@hotmail.com

Karen McFarlane
Email: kmcfarlane007@optusnet.com.au

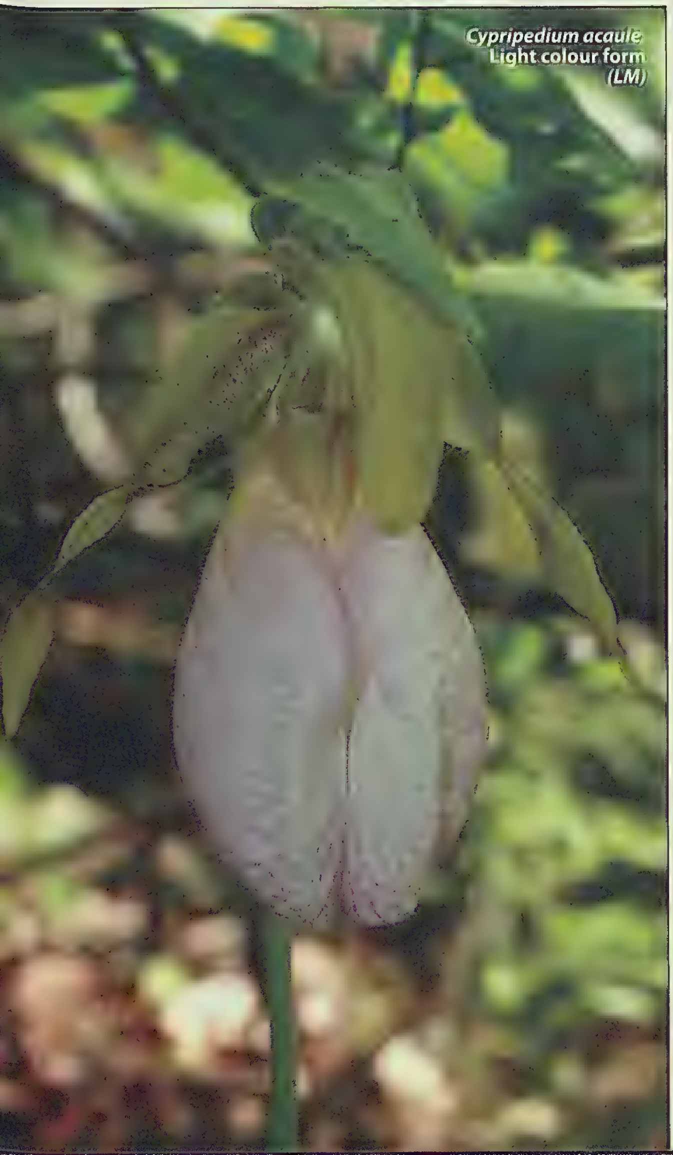

Cypripedium acaule
(LM)

Orchid Growing in Canada (or whatever you call it!)

by Jean Allen-Ikeson & Gail Schwarz

Orchid growing is our passion, although we must contend with growing 'up over' rather than 'down under.' In our case, 'up over' means Canada, which is for the most part north of the 45th parallel. That puts Canada farther away from the equator than Hobart. Our first frost is late September or early October and our last frost is in May.

We both grow Cypripediums, slipper orchids, in our respective gardens. Our native orchids are deciduous and require cold dormancy in the winter. A few friends are more adventurous with *Spiranthes* and *Plantanthera*. Habenarias will grow to the Arctic Circle and on Baffin Island. But like most Canadians, we live close to the border with the United States, which is temperate rather than an arctic climate. We keep hoping that Canada will annex a Caribbean island and float it, tropical climate and all, close to home!


Cypripedium acaule **Light colour form (LM)**

Until the government does something really useful like that, we have learned to grow our tropical orchids on windowsills, in basement rooms and in specially built greenhouses. Most orchid growers that we know are avid gardeners as well. Orchids give us that 'fix' of the scent of spring flowers with wonderful colour and display during our long winter. It makes their blooming especially prized when there is a cold wind and snow on the ground.

And yes, we attend and exhibit shows in the dead of winter. We have loaded and unloaded in windy -14°C weather. There is an upside to all of this. The lack of green and growing things brings the public to shows in February and March like bees to nectar. Our favourite displays are rainforest wannabes with drift wood, green moss and other bits and pieces camouflaging the orchid pots. This enhances the winter orchid show experience even more.

So how to do we grow our orchids in our tough winters (except for Vancouver, which is mild by comparison to most of Canada)? Many small growers grow on windowsills the same as they do the world around. Most of our homes have basements. You have to put a foundation down four feet or more to be below frost line and comply with construction bylaws so you may as well as add a few feet more and a floor and have a basement for the furnace, playroom, man-cave or whatever.

Some of our best orchid growers have enclosed basement grow areas with plastic walls, added ventilation and lights. These areas have some advantages. It is easier to control temperature, humidity and light without the whims of Mother Nature. Our good friend and fellow AOS judge, Joyce Medcalf, grows Pleurothallids and Promenaeas to perfection in her basement growing area. She lives on an island in the middle of the St Lawrence River midway between Montreal and Toronto. Joyce has incorporated T5 lights because they produce lower heat and more light than conventional florescent bulbs and a 15cm pipe with an inset fan to bring outside cool air in when the basement gets too warm. She also has a small fogger. This set up allows her to 'play' with her orchids during the fiercest of winter storms. It also makes the ideal cool environment for her cool growers.

Jean, who also sells greenhouses, prefers attached greenhouses for that same reason: you do not have to go out in the weather to access them. But neither Jean nor Gail and her husband Bob have a house with a suitable spot for an attached greenhouse. What were we thinking when we each went house hunting!

In Gail and Bob's case, they bought a house on one of Nova Scotia's many lakes and three acres of woodland. Nova Scotia is called 'New Scotland' because the climate and the terrain have similarities, although Nova Scotia has a harsher winter but a milder, sunnier summer with normal highs around

Cypripedium parviflorum
(LM)

24 or 25°C and lows of 10 to 16°C in midsummer. The orchids love the nighttime cooling and the higher humidity that being close to the Atlantic Ocean brings.

They grow their mixed intermediate-growing collection in a 16′ x 20′ freestanding greenhouse glazed with 16mm rigid polycarbonate with two airspaces for insulation value and light transmission that rivals better double-pane glass. The difference for orchid growers is that polycarbonate does not wick the cold like glass does. On very cold days, it is not unusual to see frost forming on the inside of windows in our homes. In a glass greenhouse, plants can freeze to the wall or get frost damage if they are touching the wall. This does not happen with polycarbonate.

A cistern is buried under the greenhouse floor and fed from the house roof. Many of us use cisterns here not because of drought or water restrictions but because the ground water tends to be too hard for orchid growing.

Below:
***Cypripedium parviflorum*,**
Dark form
(JM)

Cypripedium arietinum (LM)

Between the cistern and a layer of gravel and patio stones is a 40mm layer of 'below-grade styrofoam'. In Canada, such pink insulation is applied to the outside of basement walls and frequently under basement floors to keep them from being cold and from sweating. Jean has monitored with indoor/outdoor thermostats three fall-built greenhouses during the winter before furnaces were installed and operating. For both twin wall 6mm polycarbonate and the 16mm multiple airspace variety, putting insulation under the greenhouse floor keeps the greenhouse about 4°C warmer on the average on cold nights than the outside temperature. The sun heats up the gravel (15cm depth) and pavers and releases this heat during the night. The only exception is if you have high winds, which seem to act like a vacuum and suck the heat out.

The greenhouse is heated with a boiler located in a small attached shed that pumps hot water through baseboard-type residential radiators. The surface of these baseboard radiators are not well adapted to the high humidity and liberal spraying of water that occurs in greenhouses.

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Jean grows in an approximately 20′ x 50′ greenhouse that is attached and built into the long side of a barn. The barn provides storage for all the tools and potting supplies and allows her to back her car into the barn to load for shows out of the wind in the winter. Wind chill burns orchids far faster than static cold.

Jean designed this greenhouse with the idea that she could still afford to heat it if oil went to $150 a barrel and natural gas hit the highs of five or six years ago. The walls and the ceiling of her greenhouse that are built into the barn are highly insulated. The floor, like Gail's and Bob's, has below-grade Styrofoam under it. The greenhouse is built up on a short knee wall and that is also insulated on the outside with the same material and then covered with flashing.

Above: ***Epipactis helleborine*** *(JM)*

Right: ***Malaxis unifolia*** *(LM)*

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The glazing on the attached part of the greenhouse is the latest in high insulation value: five-wall, 16mm thick polycarbonate (four airspaces). This provides equal or better insulation that the majority of advertised high-end double glass (although such hard-coat low-E glass has its insulation value degrade typically after a few years). The downside of such glazing compared to the triple wall that Gail and Bob have is that it only transmits about 63% of light compared to 80%, which is a disadvantage when day length is shorter and sunlight less intense in the winter. In the spring and autumn, this is an advantage because you need shade cloth for less of the season and less shade percent during the summer. Both greenhouses are set up for high-intensity lighting to boost day length in the winter.

Jean has two Modine 75,000 btu propane furnaces, one at each end of the greenhouse. It helps keep the temperature a similar value on both ends of the greenhouse. After many years of growing in a variety of greenhouses, Jean found this set up to give the best peace of mind: if one furnace goes on the blink, then the other will still keep the greenhouse at a reasonable temperature on the coldest day, although one end might be a tad cool. There is not much worse than running back and forth to the greenhouse to check portable propane and electric heaters in the middle of a blizzard when the roads are not open.

Plantanthera grandiflora (LM)

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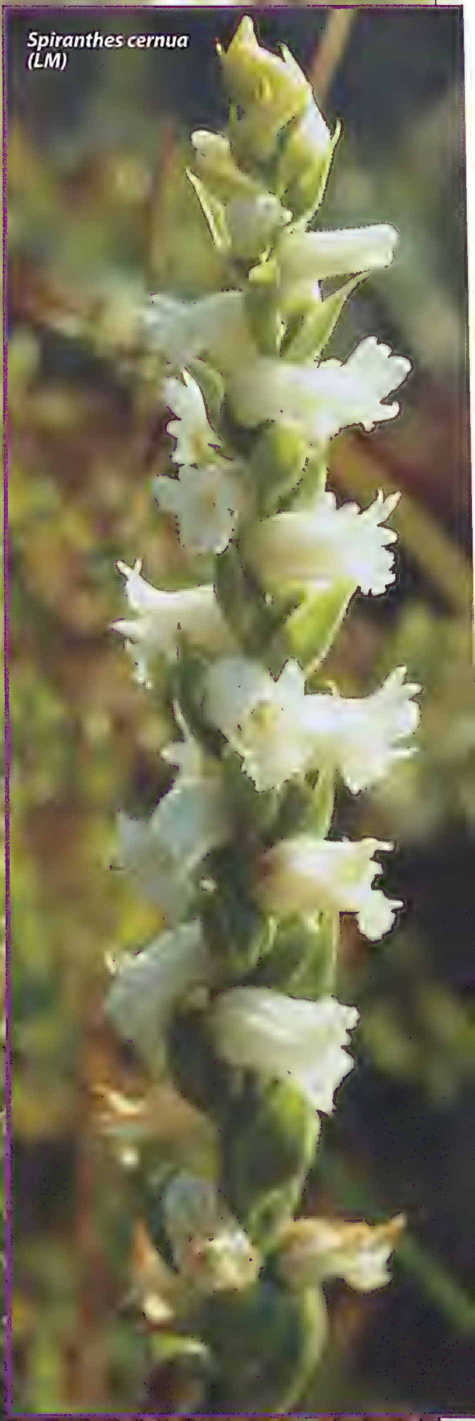
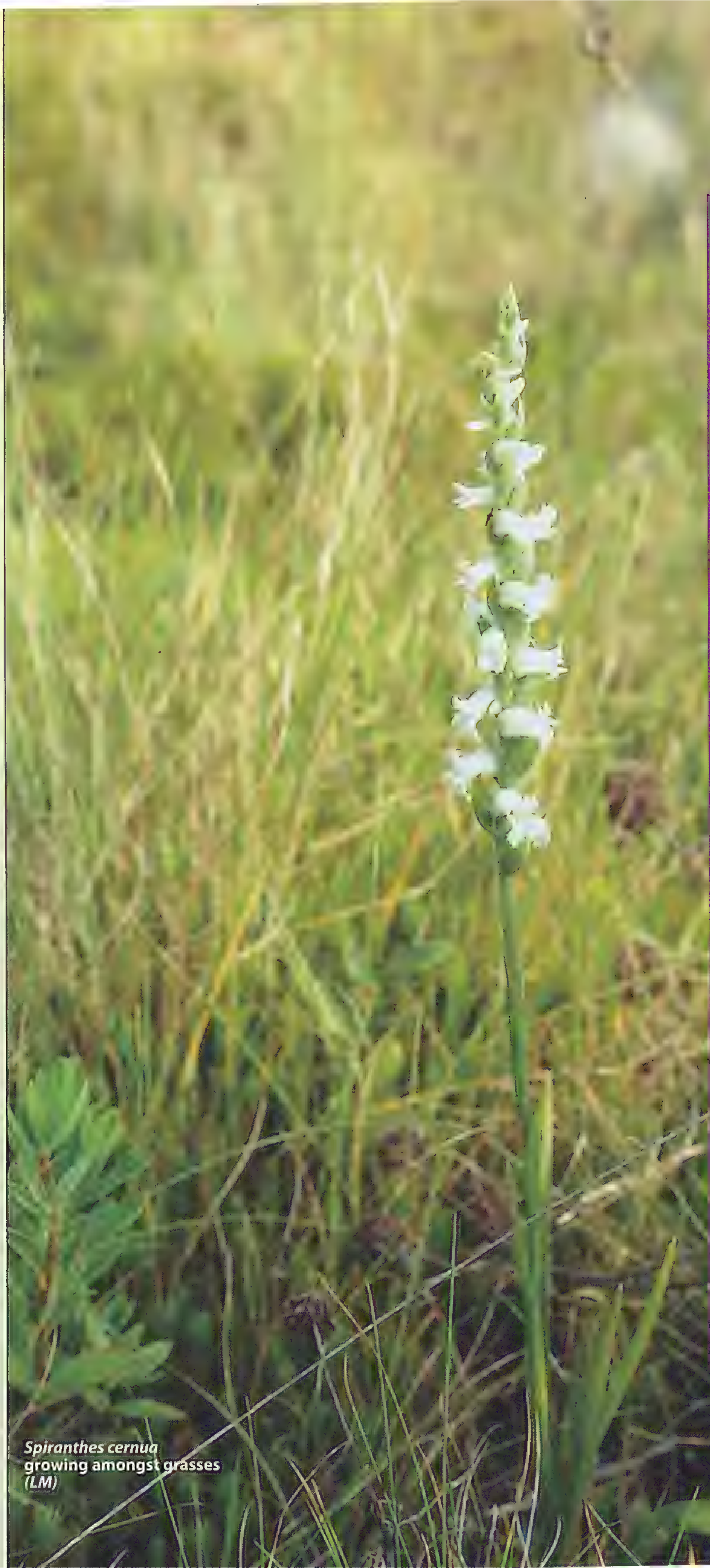
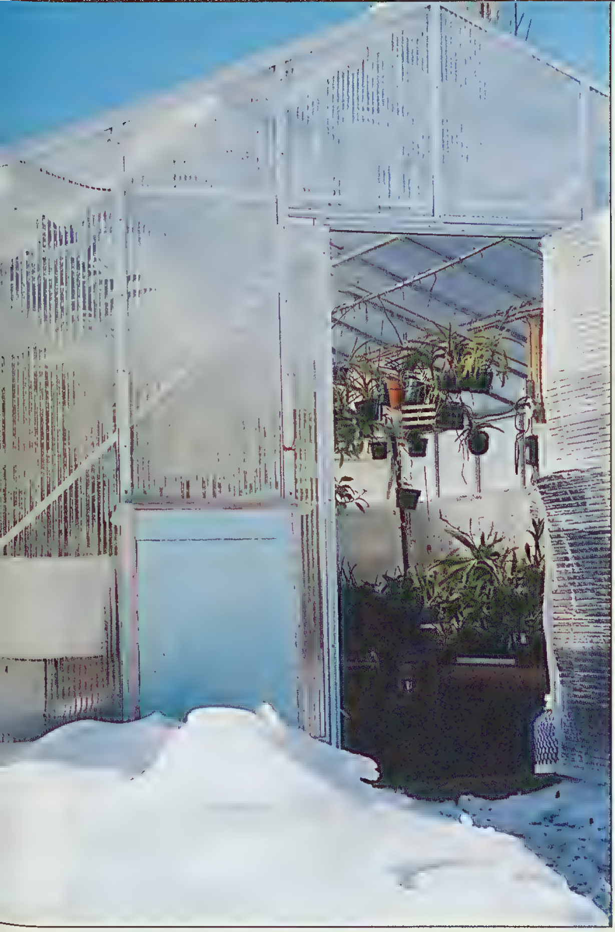
Right: ***Plantanthera grandiflora* forma *alba*** *(LM)*



Spiranthes cernua (LM)



Spiranthes cernua growing amongst grasses (LM)



Above: Looking through Jean's greenhouse door with snow! This shows the door and the north wall lined with what we call "double bubble". It looks like bubble wrap used for packing except that it has foil one side and white plastic the other side. I used it to insulate the door and the north side of the greenhouse with the foil facing in. That way it also reflects the low light levels we get in the winter. Double bubble is used to wrap hot water heaters to make them more energy efficient. You can buy a kit in Canada just for that or buy the stuff in big rolls. It is about 10mm thick.
(JAI)

You have heard the old saying that two heads are better than one. In this case two furnaces are better than one. That brings us to another backup system: automatic propane generators in case the power goes out. This is absolutely essential unless you are comfortable with playing Russian roulette with your orchid collection. If the power goes out, our generators start within 30 seconds. While we have propane heat, they still require electricity to start and for pumps or fans. Even in the summer, if some idiot hits a power pole and the power goes out when it is 30°C, the greenhouse can overheat and cook everything quickly. A large Pleurothallid grower in Michigan recently lost her entire collection that way.

Other growers here use less expensive roll-type flexible poly but with two layers and an airspace. Most also install a 'bubble' over the top. This is like a huge air mattress made out of poly. An air pump inside the greenhouse pumps warm air into it constantly to keep it inflated. This provides a high degree of heat retention but also shades the greenhouse more in the winter. The downside is that if there is snow that starts to melt and refreezes at night or sleet, those can create an ice sheet that can slice the bubble as it slides off when the sun comes out. Most people simply turn the air pump off and allow the bubble to deflate, which allows for more heat loss and the ice or frozen snow starts to melt and slides off before it can do damage.

Cold winters are not always a disadvantage. Mario and Conni Ferrusi, owners of more than 250 AOS awards to their orchids, use a bubble in the winter over their twinwall polycarbonate greenhouse and a water wall in the summer to maintain a cool growing environment for their Masdevallias, Draculas, Promenaeas, Lycastes and Odontoglossums. Because these plants can take a cooler low temperature, their heat bills are quite reasonable by Canadian standards. In midwinter, his orchids put on a wild display of saturated reds, purples and yellows.

We would all love to be able to grow *Dendrobium speciosum* in the yard in Canada or in an unheated bush house, but we do what we have to do to feed our obsession. As one of our friends says, we are all orchidoholics. (Linda MacDonald, Joyce Medcalf, Jean Allen-Ikeson and Gail Schwarz kindly provided their photographs for use with this article.) ■

Jean Allen-Ikeson & Gail Schwarz
Nova Scotia, Canada
Email for Jean: jean.ikeson@gmail.com

Left:
Joyce's basement grow-room
(JM)

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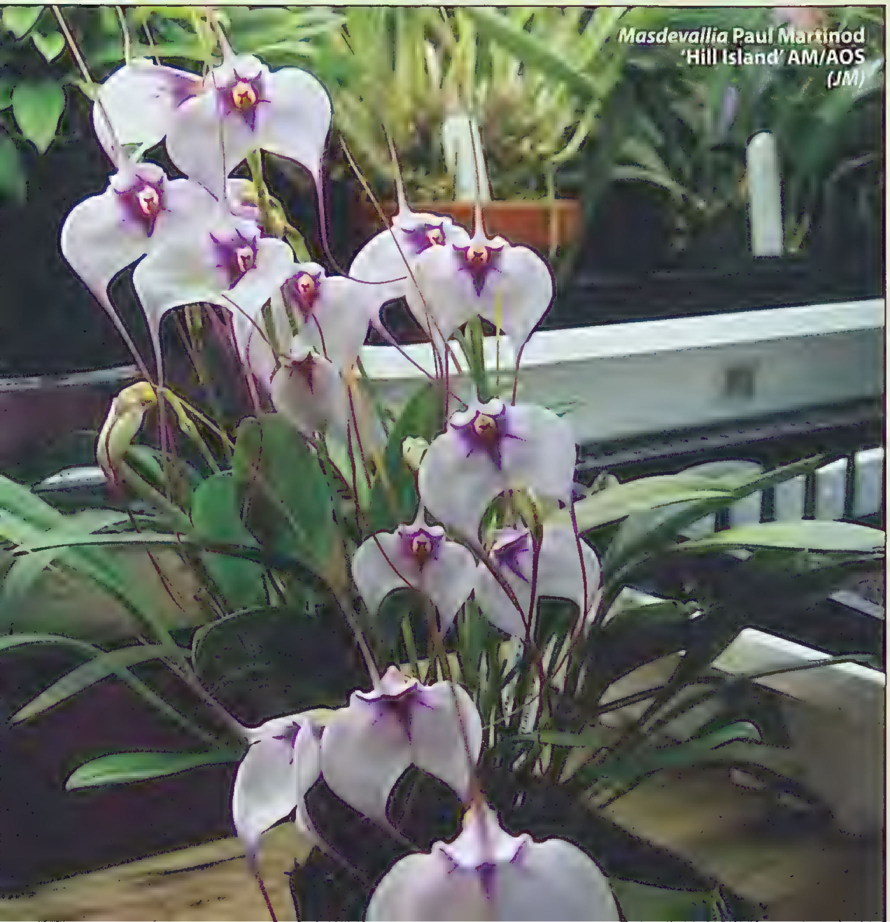
Above: More of Joyce's orchid room *(JM)*



Masdevallia Paul Martinod 'Hill Island' AM/AOS *(JM)*

Above: Gail's greenhouse in the snow! *(GS)*

Below: Gail's greenhouse on Christmas Day 2011 (GS)

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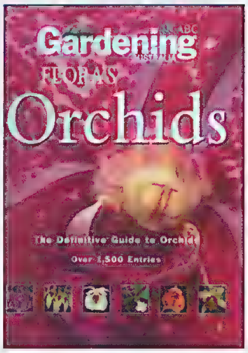
FLORA'S ORCHIDS

Senior Consultant David P. Banks



Part of the best-selling *Flora* range, this is the definitive guide to orchids with over 1,500 entries. Ranging from the unique to the unusual, the beautiful to the bizarre, orchids have long symbolised beauty, elegance and refinement. *Flora's Orchids* presents more than 1,500 varieties of this highly variable plant family, with entries accompanied by at least 1,300 stunning colour photographs. The orchids are arranged by genus in an A-Z format. Each entry first lists the scientific name in Latin, often accompanied by a Latin synonym and, where appropriate, the translated common name. Plant spread and height are listed, followed by symbols indicating plant type, natural growing locations, growing conditions, frost tolerance, preferred temperatures, type of flower, and preference for pot or mount cultivation. The brief descriptions explain the type of genus, geographic area, and flowering and dormancy seasons. There is a wealth of sound cultural and propagation advice.

AOR Editor David P. Banks was the Senior Consultant for *Flora's Orchids* and is also credited as the Principal Writer. Especially valuable for aspiring botanists and average gardeners is the background information that precedes the dictionary text and explains orchid varieties, taxonomy, hybridisation, history, cultivation, propagation, and more. The history section delves into the fascinating historical development of the plant for culinary and medicinal usage and also explores the use of orchids in folklore and literature. A detailed cultivation table for each of the species is found in the appendix. This work is regarded by many as the logical replacement of *What Orchid Is That?*

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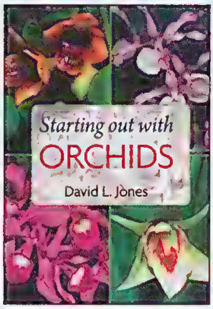
STARTING OUT WITH ORCHIDS

by David L. Jones



David Jones is arguably one of Australia's most prolific, precise and respected botanical and horticultural authors. The book is divided in two parts. Part One begins with the cultivation chapters, covering Easy Orchids for Beginners, General Cultivation Requirements, Growing Epiphytic Orchids, Growing Terrestrial Orchids, Orchid Pests and Diseases, Housing Your Orchids and Propagating Your Orchids. The information contained within these pages alone is required reading for all beginners through to experienced orchid growers. The text is very easy to read and understand with numerous sound cultivation tips and treatments discussed. There are many excellent and clear line illustrations that help describe terms or highlight diagnostic features. There are over 250 colour photographs.

Part Two discusses the orchids themselves with concise information on each species. They are grouped primarily according to climatic requirements, starting with cool growing orchids progressing to the warm growers, in alphabetical sequence first with terrestrial genera, followed by the epiphytes. Both Australian and exotic species are treated together. For each entry there is specific detailed information on each species, as well as a simple table giving the basic cultivation needs and flowering season. A glossary is also included to explain unfamiliar terms.

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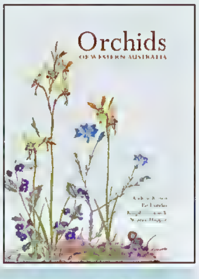
ORCHIDS OF WESTERN AUSTRALIA

by Andrew Brown, Pat Dundas, Kingsley Dixon & Stephen Hopper



Written by three of Western Australia's most prominent orchidologists and featuring over 200 full-page, colour illustrations by renowned botanical artist Pat Dundas, *Orchids of Western Australia* is the first modern text cataloguing all 409 known species.

This comprehensive resource for hardened enthusiasts and initiates alike features a wealth of information in a single volume – from a detailed introduction to WA orchids to information on each species, including who named them, where they were first collected, their habitat, distribution, flowering period, size and distinguishing features. This book is the culmination of decades of work by WA's foremost experts, each dedicated to the conservation of one of the world's most important regional orchid floras.

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ORCHIDS IN YOUR GARDEN

How to grow orchids in the backyard

by Robert Friend

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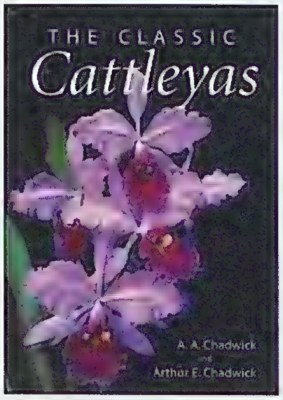
THE CLASSIC CATTLEYAS

by A.A. Chadwick and Arthur E. Chadwick



In 1818, William Cattley succeeded in flowering one of the first species of the genus that would bear his name. These first cattleyas are the classic cattleyas, whose form defined the essence of tropical orchids for generations to come. Indeed, the colour of their flowers became known as "orchid." In this helpful and informative book, each classic *Cattleya* species (and cattleya-like *Laelia* species) is described in fascinating detail, and its role in breeding programs is elucidated. All that is required to appreciate and grow the large-flowered cattleyas successfully is included. There are ten line drawings and 162 wonderful colour photographs. Cultivation, humidity and watering, fertilising, propagation, and diagnosing and treating problems are detailed, making this volume valuable for both veteran orchid enthusiasts and those who simply love these beautiful flowers.

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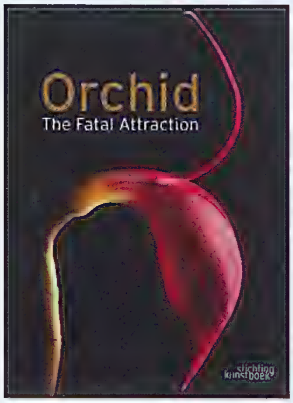

ORCHID: THE FATAL ATTRACTION

by Anne Ronse

The subject of orchids is one close to the heart of many floral designers. some feel it's a privilege to work with these flowers and plants but often wonder how many designers actually decide to investigate the history and nature of them rather than just how to condition them. The text by Dr Anne Ronse, is informative and enthusiastic and the photography is superlative! It's so good that the flowers literally drip off the pages capturing the imagination and the heart. If you want something special, are addicted to orchids and want to luxuriate in glorious text and images; this is the book for you.

142 pages.
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GROWING BROMELIADS (3rd Edition)

by the Bromeliad Society of Australia

Many orchid growers also have a few "broms" in their collection and gardens. This is a revised 2006 edition of the highly successful book on growing and caring for bromeliads. This book was compiled and revised by experienced members of the Bromeliad Society of Australia.

Growing Bromeliads describes how and where to grow over 200 species and hybrids, and details ten of the most popular genera with brief notes on the more unusual genera. The main genera covered are: *Aechmea, Ananas, Billbergia, Cryptanthus, Dyckia* and *Hechtia, Guzmania, Neoregelia, Nidularium, Tillandsia,* and *Vriesea*. Descriptions of the native habitats for each of the ten genera are given, enabling you to provide the right growing conditions for any of these species within these genera. In total, over 400 species/hybrids are discussed.

The book gives an interesting overview of the Bromeliad family, including a brief history of Bromeliad cultivation. There are also separate chapters on how to propagate these wonderful plants and on their unique botany. All of this is written in straightforward language with scientific terminology kept to a minimum. This new 128 page updated Third Edition includes: a new chapter on Australian hybrids; ten new species; new chemical treatment for bromeliads and recent name changes.

Growing Bromeliads is a great introduction to growing bromeliads in Australia. As such, it is a very useful book for someone who has a few bromeliads and wishes to find out more about how to grow them.

128 pages, 100 colour photos. Softcover.

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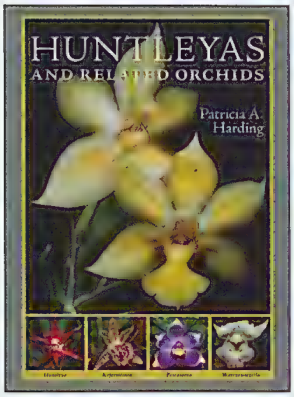

HUNTLEYAS AND RELATED ORCHIDS

by Patricia A. Harding

Revered by avid orchid collectors for its delightful, star-shaped flowers, *Huntleya* is a small group of orchids found low in the forest. *Huntleya* is a small orchid genus that includes fourteen species. They occur in wet cloud forests at medium altitudes of Guatemala, Costa Rica, South America down to Bolivia. The type species *Huntleya meleagris* also occurs in Trinidad. Besides their striking colours — from deep blue to waxy red, royal purple to almost black — flowers of this group are known for their distinctive shapes, patterns, and textures. As appealing as these lovely tropical orchids are, their identification has been confused since the first species was described in the mid-1800s. Recent DNA studies have led to a clearer understanding of relationships and, as a result of this clarity, it is now possible to sort out the taxonomic problems and identify the characteristics that set species apart. In this first book devoted to the *Huntleya* alliance, author Patricia Harding presents evidence from the scientific literature, other growers, and her own experience that will enable orchid enthusiasts everywhere to identify their plants and grow them successfully. Patricia A. Harding is an accredited American Orchid Society judge who has been growing and photographing orchids for three decades.

260 pages, 150 colour photos. Hardcover.

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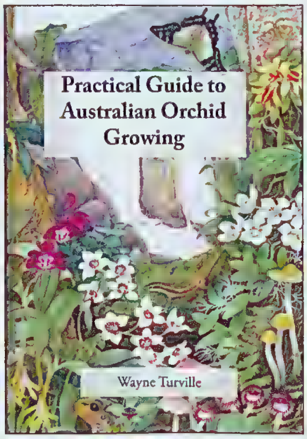

PRACTICAL GUIDE TO AUSTRALIAN ORCHID GROWING

by Wayne Turville

The 64 page *Practical Guide to Australian Orchid Growing* was over two years in the making, being written by Wayne Turville who runs a large commercial orchid nursery in Victoria, Australia – specialising in Australian *Dendrobium* hybrids. This book was written for everybody from the absolute amateur through to the hardened "orchid nut". However, due to its low cost and practical nature, this book fills a huge void in orchid literature. Simple, easy to understand language, lots of pictures, and glorious examples of the some of the finest native orchids ever photographed both in nature and at orchid shows.

The title is somewhat misleading, as the text covers major cultivation principles for ALL orchid genera, not just the Australian native *Dendrobium* species and their hybrids. Topics covered (and illustrated) include Blooms, Starting a Collection, Housing Your Orchids, Day to Day Growing, Pests and Diseases, Physical Damage, Cymbidiums and *Sarcochilus*, plus Bits and Pieces (information about orchid propagation, orchid societies and deflasking.). This booklet is recommended for all new orchid enthusiasts, and all who want to brush up on their cultural skills and knowledge.

64 pages, colour.
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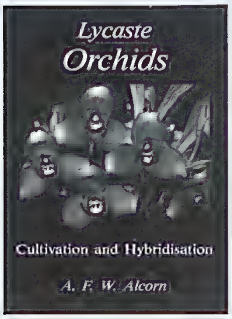

LYCASTE ORCHIDS -

Cultivation and Hybridisation

by A.F.W. Alcorn

Lycaste orchids are easy to grow, and they produce flowers that range from the beautiful to the bizarre. No book previously has provided detailed cultural requirements of the Lycaste, and this book should fill that gap, and encourage new growers to take up the cultivation of this beautiful genus. A section on hybridising contains valuable information on inheritance and genetics that will benefit any hybridiser, not just the grower of Lycastes, as well as helpful hints on how to avoid pitfalls in your hybridising program. Michael Hallett, a friend of Fred Alcorn for a number of years, co-wrote this book with Fred and has completed it posthumously. He has a background in genetics, research and botany, and a passion for plants, especially orchids.

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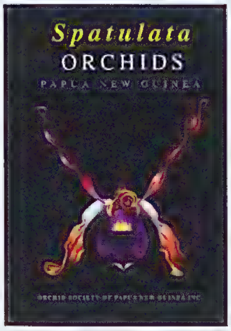

SPATULATA ORCHIDS OF PAPUA NEW GUINEA

by Justin Tkatchenko and Steven Kami (featuring photographs by Rocky Roe)

This excellent A4 sized 96 page book is now out of print and we have secured the last few copies for our readers. It is not a scientific publication - but a very professional presentation – published by the Orchid Society of Papua New Guinea - showcasing the variety expressed within the native *Spatulata* Dendrobiums of Papua New Guinea. Over 100 colour photographs illustrate more than 30 species and colour variations. It also includes a number of newly discovered and currently undescribed species. The book includes distribution maps for each species and a section on cultivation, written by the local experts in their field. A required text for those interested in Dendrobiums, Orchids of PNG and tropical orchids in general. (Note: these copies are shrink-wrapped, and some pages may be stuck together. This can be rectified by either/or bending the pages or the use of a sharp knife to carefully separate the pages. This was accounted for in the reduced price.)
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David P. Banks
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New South Wales
Veronica Clowes
P.O. Box 5396, Chullora NSW 2190
Phone: (02) 9649 2719
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Queensland
Maree Illingworth
P.O. Box 126BC, Brown Plains 4118
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Western Australia
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Victoria
Diane Sharam
1 Tynan Street, West Preston, 3072
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Frankie Fraser
Phone: (03) 9802 9929
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South Australia
Coralie Hills
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Email: david@hillsdistrictorchids.com

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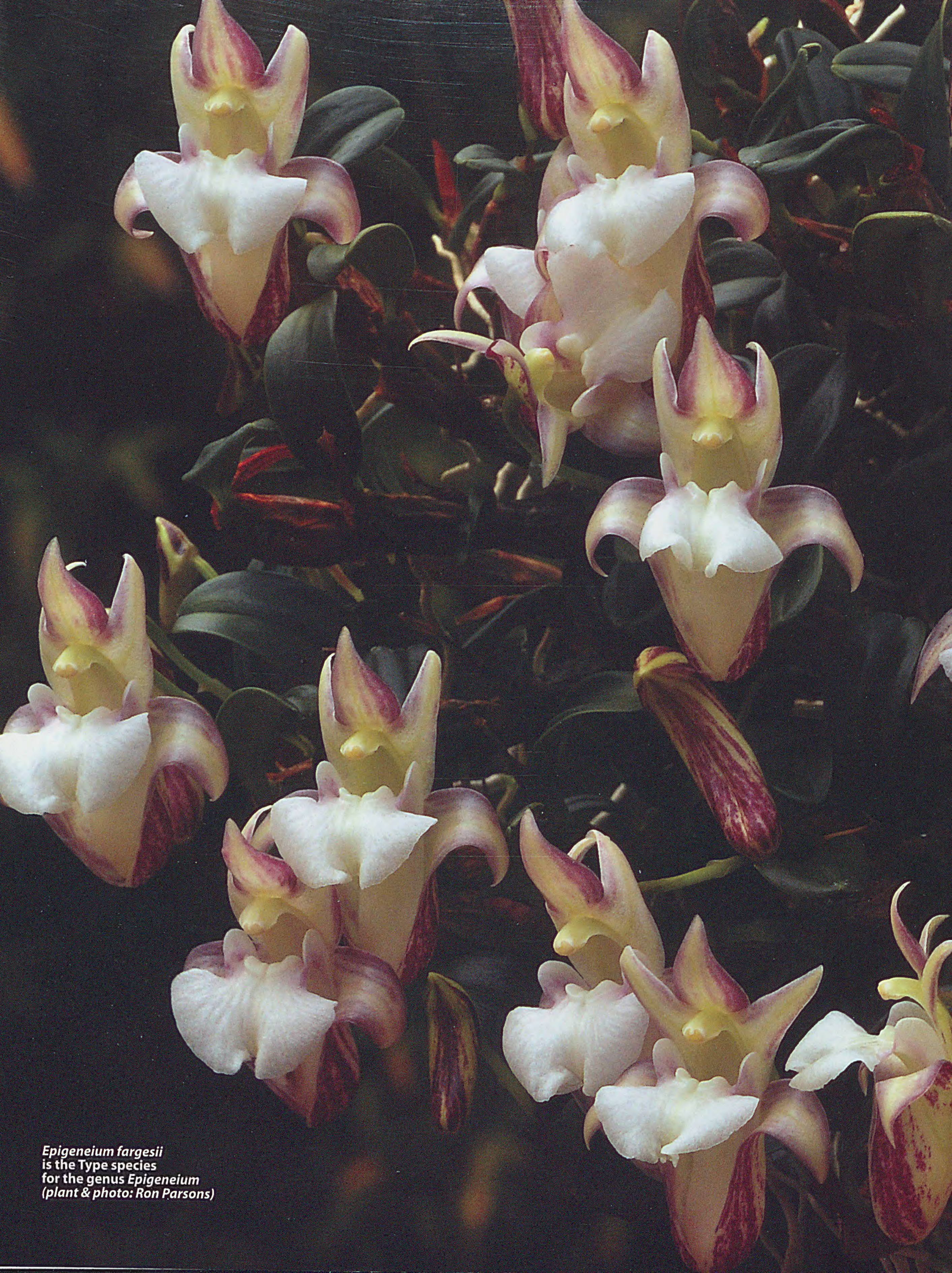

***Epigeneium fargesii* is the Type species for the genus *Epigeneium* (plant & photo: Ron Parsons)**